

# Personal Systems Reference Lenovo® ThinkServer™ Servers

November 2010 - Version 388



New Lenovo ThinkServer 200 Series Family TS200v/TD230/RD240

# ThinkServer.







Lenovo® ThinkServer TS200v

Type- Slot x model bay	Processor GHz Cores	Memory DIMMs	Memory speed	Disk(s)	Disk F size			Disk bays		SATA optical	Graphics adapter(s	Windows Servi) preload	ver Power supply(s	Ava s) dat
0981-11U 4x4 0981-12U 4x4 0981-18U 4x4 0981-19U 4x4 0981-1AU 4x4 0981-1BU 4x4	G1101 2.26 2 G6950 2.80 2 i5-650 3.20 2 i5-650 3.20 2 G6950 2.80 2 i5-650 3.20 2 X3450 2.66 4	1x2GB 1x2GB 1x2GB 1x2GB 2x2GB 1x2GB	1333MHz 1333MHz 1333MHz 1333MHz 1333MHz 1333MHz	1x250GB 1x250GB 2x250GB 1x500GB 2x250GB 2x250GB 1x500GB	3.5" 3.5" 3.5" 3.5" 3.5" 3.5" 3.5"	1	2xD 2xD 2xD 2xD 2xD	irect ( irect (	Cable Cable Cable Cable Cable	DVD DVD DVD±RW DVD	Intel HD Intel HD Intel HD	2008 Foundati 2008 Foundati 2008 SBS Std	280W ons 280W 280W ons 280W 280W	Mar 1
	These small and					re pa	art o	the U	S Top	Seller™ Pr	rogram			
Processor	Intel® Celeron® F Intel 64, Virtualiza integrated 1066M and 2MB cache c Intel Pentium® P Intel 64, Virtualiza integrated 1066M and 3MB cache c Intel Core™ i5 Pi Intel 64, Hyper-Ti Virtualization Tec DDR3 memory co Intel 64, Hyper-Ti TXT, Turbo Boost DDR3 memory co * Intel Celeron Pr applications requ	ation Tech Hz dual-o r rocessor tion Tech Hz dual-o r rocessor nnology, T ontroller, a essor X3 nreading T Technolog ontroller, a cocessor G ring more	nology, hannel D  G6950 w nology, hannel D  i5-650 wirechnolog XT, integrand 4MB of the connolog grand 101 is retained than 5 cl	DR3 mem  ith dual-cc  DR3 mem  th dual-cc  y, Turbo B  rated 1333  cache or  quad-core  y, Virtualiz  ated 1333l  cache  iot recomr  ients or hi	ory coore, floory coore, floost To BMHz of MHz d mende gh wel	ntrol echn dual- Techi ual-c	ler, ology chan nolog	nel	• R 6.	disk (disk disk disk disk disk disk disk disk	)"D x 14.9	"H		
Implementation Memory	Processor in LGA 1GB, 2GB, or 4G PC3-10600 13331 ** System automa DDR3 memory co	B std, 160 MHz DDR atically clo	GB max, I 3**, <b>ECC</b> ,	UDIMM, four 240-	pin DIN				175mm W x 407mm D x 377mm H     24.7 lb (11.2kg) max configuration     25-liter     Toolless side cover removal     Toolless disk and optical drive removal					
Graphics	Some: Intel HD	Graphics , one Disp Quadro® I	olayPort™ F <b>X 380</b> , F	connecto Cle x16 a	r ıdapter	, 256	SMB,		Toolless adapter retention     Illuminated front icons      Disk Bays  Bay 1 5.25",1.6" high, external, std optical Bay 2 5.25",1.6" high, external, optional optical Bay 3 3.5", 1" high, external, std disk Bay 4 3.5", 1" high, external, std or opt disk      Expansion Slots  Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, 32-bit PCI					
Disk bays SATA disk(s) SATA DVD SATA DVD±RW SATA controller Chipset	Two 3.5" SATA di: 250GB or 500GB Some: DVD-RON Some: Super Mul Serial ATA, SATA two SATA connect Intel 3450 Chips	, SATA 3.4 I DL SATA ti-Burner 3.0Gb/s, i tors for dis	OGb/s, 72 1.5Gb/s DL DVD± ntegrated sks, two S	.00 rpm, 3 16X-48X I RW SATA I in chipse SATA conn	.5" Max <sup>4</sup> [ 1.5Gb t, RAII lectors	s Di 0 0, for c	1 sup optica	pport, als						k 16
Front ports	Platform Controlle Two USB 2.0	er Hub (Po	JH) for Po	Ji, etnerne	et, and	1051	3			t 4: half-ler	ngth, full-h	eight, 32-bit P	CI	
Rear ports  Ethernet Security chip Diagnostics	Six USB 2.0, seri three analog aud Intel HD model(s, One gigabit ether STMicroelectroni TCG 1.2-complia Two system statu (disk drive activity	o ports (li b: one and net on pla cs ST19N nt s LEDs or	ne-in, line alog VGA ınar, Intel P18 Trust n front pa	e-out, mic- DB-15 , or 82578DM ed Platfor	nė Dis I	-		),	<ul> <li>Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)</li> <li>Security slot (in rear for optional Kensington® Microsaver® cable;</li> </ul>					
Keyboard Mouse Power supply Cooling Rack mount	None (use USB p None (use USB p One 280 watts st no redundancy, 8 4 fans (power sup Rack shelf suppo	ort) andard, or 5% PSU, oply, CPU,	80 PLUS <sup>o</sup> rear, fror	Bronze q			hot-s	swap,						
1GB PC3-10600 DDR3 ECC UDIMM       67Y1387         2GB PC3-10600 DDR3 ECC UDIMM       67Y1388         500GB 3.5" SATA Cabled (7200 rpm)       67Y1401         More accessories on O-RED sheet       Other accessories at lenovo.com/accessories							prohibits side cover removal)  Power-on password  Boot sequence control  Boot without keyboard, mouse, diskette  Serial port I/O control  USB port disablement (front or all)							
Limited Warranty¹    1-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays)  ThinkPlus™ services available; see lenovo.com/thinkplus/warranty  Onsite service upgrade options (in eligible locations)²							Preloaded Operating System  Some: Genuine Windows Server® 2008 R2 Foundations Some: Genuine Windows Small Business Server 2008 Standard SP2							
	anty maintenance so day <sup>14</sup> toll-free suppo	ervices		•		00.44	26 72	70		ERGY STA -IS-complia		r 1.0-complian	t	

Type- model	Slot x bay	Processor	GHz Cor		Memory speed	Disk(s)	Disk size	Pre-cor RAID	nf Disk bays		Graphics adapter(s)	Windows Server preload	Power supply(s)	Avail date
0992-19	U 4x4	X3450	2.66 4	1x4GB	1333MHz	1x500GB	<sup>2</sup> 3.5"	No	2xDirect Cable	DVD±RW	FX380	No	280W	Nov 10

- Real server class dependability at desktop price point
   Ideal entry single-socket tower server for growing enterprises, corporate branch offices and Managed Service Providers
   This model has a 3-year limited warranty<sup>i</sup>
   This small and medium business (SMB) model is part of the US TopSeller™ Program

Processor  Implementation	Intel® Xeon® Processor X3450 with quad-core, Intel 64, Hyper-Threading Technology, Virtualization Technology, TXT, Turbo Boost Technology, integrated 1333MHz dual-channel DDR3 memory controller, and 8MB cache Processor in LGA1156 socket, up to one processor	Tower PSU				
Memory	4GB std, 16GB max, UDIMM, PC3-10600 1333MHz DDR3, ECC, four 240-pin DIMM sockets	optical : I				
Graphics	NVIDIA® Quadro® FX 380, PCIe x16 adapter, 256MB, two dual-link DVI-I, includes DVI to VGA converter, 35W					
Disk bays SATA disk(s) SATA DVD±RW SATA controller	Two 3.5" SATA disk bays, no hot-swap, direct cable <b>500GB</b> , SATA 3.0Gb/s, 7200 rpm, 3.5" Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA connectors for disks, two SATA connectors for opticals	000   1 - PCle x16   2 - PCle x1   3 - PCl   4 - PCl				
Chipset	Intel 3450 Chipset, Platform Controller Hub (PCH) for PCI, ethernet, and USB	Raven black color; metal case  6.9"W x 16.0"D x 14.9"H				
Front ports Rear ports  Ethernet Security chip Diagnostics	Two USB 2.0 Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) Intel HD model(s): one analog VGA DB-15, one DisplayPort One gigabit ethernet on planar, Intel 82578DM STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant Two system status LEDs on front panel	175mm W x 407mm D x 377mm H     24.7 lb (11.2kg) max configuration     25-liter     Toolless side cover removal     Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons				
	(disk drive activity, power/sleep)	Disk Bays				
Keyboard Mouse Power supply	None (use USB port) None (use USB port) One 280 watts standard, one maximum, autosensing, no hot-swap, no redundancy, 85% PSU, 80 PLUS® Bronze qualified	Bay 1 5.25",1.6" high, external, std optical Bay 2 5.25",1.6" high, external, optional optical Bay 3 3.5", 1" high, external, std disk Bay 4 3.5", 1" high, external, opt disk				
Cooling Rack mount	4 fans (power supply, CPU, rear, front) Rack shelf support	Expansion Slots				
2GB PC3-10600 4GB PC3-10600 500GB 3.5" SAT	Accessories  DDR3 ECC UDIMM 67Y1387 DDR3 ECC UDIMM 67Y1388 DDR3 ECC UDIMM 67Y1389 A Cabled (7200 rpm) 67Y1401	Slot 1: half-length, full-height, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x1 Slot 3: half-length, full-height, 32-bit PCI Slot 4: half-length, full-height, 32-bit PCI Software Management Tools  • ThinkServer EasyStartup  Power-On Hotkey  • Setup Utility: F1 at startup • Diagnostic: F2 at startup • Network Boot: F12 at startup • RAID Configuration Utility: Ctrl+I at startup				
	Cabled (7200 rpm) 67Y1402 es on O-RED sheet					
Other accessori	es at <b>lenovo.com</b> /accessories					
		Security				
		Security chip (see information on left) Padlock loop (in rear for opt padlock; padlock prohibits side cover removal) Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal) Power-on password Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (front or all)				
	Limited Warranty <sup>1</sup>					
selected part  ⇒ ThinkPlus™  • Onsite serv	and labor  splaceable Unit (CRU) parts only (with limited onsite service for services for services and services elenovo.com/thinkplus/warranty vice upgrade options (in eligible locations) <sup>7</sup> nty maintenance services	ENERGY STAR® Server 1.0-compliant				
	ay <sup>14</sup> toll-free support during the warranty period <sup>1</sup> via 800-426-7378	RoHS-compliant				

# ThinkServer™ TS200v Accessories

# Partial list of accessories supported on Lenovo® ThinkServer TS200v.

ThinkServer Ready accessories are available through Lenovo Business Partners. Locate a Business Partner near you at: bplocator.lenovo.com

### Memory

1GB PC3-10600 DDR3 ECC UDIMM	67Y1387	ann 02/23/10
2GB PC3-10600 DDR3 ECC UDIMM	67Y1388	ann 02/23/10
4GB PC3-10600 DDR3 ECC UDIMM	67Y1389	ann 02/23/10

### Backup

Lenovo 160GB Internal USB RDX Bundle	67Y1394	ann 02/23/10
Lenovo 320GB Internal USB RDX Bundle	67Y1396	ann 02/23/10
Lenovo 500GB Internal USB RDX Bundle	67Y1398	ann 02/23/10
Lenovo 160GB RDX Data Cartridge	67Y1395	ann 02/23/10
Lenovo 320GB RDX Data Cartridge	67Y1397	ann 02/23/10
Lenovo 500GB RDX Data Cartridge	67Y1399	ann 02/23/10

Connectivity Intel PRO/1000 PT Dual Port Ethernet 67Y1393 ann 02/23/10

**Disk Drive** 3.5" SATA Cabled: 250GB<sup>2</sup> 3.5" SATA (7200 rpm) 500GB 3.5" SATA (7200 rpm) 1TB 3.5" SATA (7200 rpm) 67Y1400 ann 02/23/10 67Y1401 ann 02/23/10 67Y1402 ann 02/23/10

**Keyboard** Preferred Pro USB Keyboard 73P5220 ann 06/21/05

### Mouse

Lenovo Optical Mouse (USB) 06P4069 ann 05/21/03

For more information on server accessories, please visit: www.lenovo.com/support/accessories www.lenovo.com/support/thinkserveraccessories www.lenovo.com/support/security

Other accessories at www.lenovo.com/accessories

Accessories Guide pdf at www.lenovo.com/accessoriesguide

# Partial list of Lenovo® ThinkPlus Services for ThinkServer TS200v

For more information see:

http://www.lenovo.com/services\_warranty/us/en/index.html

## **Training classes**

• The basics on components, diagnostics, troubleshooting, and managing Lenovo servers, delivered in interactive online format

Online Training, Understanding Lenovo Servers	45K4080
Online Training, Understanding Systems Management	45K4081
Installation, ThinkServer Hardware Only	45K4082

## ThinkPlus service upgrade options7

LOR = Lenovo Onsite Repair

# TS200v with 1-year warranty

3-year LOR 9x5 Next Business Day 4-year LOR 9x5 Next Business Day	45K4055 51J0723
5-year LOR 9x5 Next Business Day	51J0725
TS200v with 3-vear warrantv	

4-year LOR 9x5 Next Business Day 5-year LOR 9x5 Next Business Day 51J0727 51J0729

# **ThinkPlus Priority Support**

- 9x5 Next Business Day response Lenovo Onsite Repair
- 24x7 support with priority routing and advanced level technicians

# **TS200v with 3-year warranty** 3-year Priority Support

45K4060

# ThinkPlus Priority Support with Hard Disk Drive Retention

- 9x5 Next Business Day response Lenovo Onsite Repair
- 24x7 support with priority routing and advanced level technicians
   Hard Disk Drive Retention (HDDR) means customer keeps disk

# TS200v with 3-year warranty

3-year Priority Support with HDDR

45K5443

# **ThinkPlus Productivity**

- Priority Support
- Online Training, Understanding Lenovo Servers
   One-time hardware installation

3-year ThinkPlus Productivity, TS200v (3-year) 45K4086

# ThinkServer.



Lenovo ThinkServer TS200



Lenovo ThinkServer TS200 with Redundant Power Supply



Lenovo ThinkServer TS200 with Redundant Power Supply



Lenovo ThinkServer TS200

	Proc- Base Max Memory Memory Memory Disk RAID ssor(s) GHz GHz Cores DIMMs type speed size battery	Disk Disk RAID IMM Power Avail bays type Int Premium supply(s) date				
6525-11U 5x7	(3430 2.40 2.80 4 1x2GB UDIMM 1333MHz 3.5" None	4xSimple-swap SATA 0/1 401W Nov 09				
6525-12U 5x7 2 6525-16U 5x7 2	(3450 2.66 3.20 4 1x4GB RDIMM 1333MHz 3.5" None  • These models have a 3-year limited warranty	4xHot-swap SATA/SAS 0/1/10 IMM 401W Jan 10				
	These small and medium business (SMB) models are part of the U	JS TopSeller™ Program				
Processor(s)	Up to one processor, one processor standard, Intel Xeon® Processor X3430 and X3450 with quad-core, 2.5GT/s (giga-transfers/second) DMI (Direct Media Interface), Turbo Boost Technology, Hyper-Threading Technology (X3450 only), Intel 64, 1333MHz DDR3 memory controller, 8MB cache	Front Rear  optical PSU				
Implementation  Memory	One LGA1156 socket  2GB or 4GB std, UDIMM or RDIMM*, PC3-10600 1333MHz DDR3, Advanced ECC**, Memory Mirroring 11U: Four 240-pin DIMM sockets, 16GB max (Pending availability of 4GB UDIMM), std memory in 1 socket, 3 sockets available  12U/16U: Six 240-pin DIMM sockets, supports up to 6 single- or dual-rank RDIMMs, or up to 4 quad-rank RDIMMs  * Cannot intermix RDIMM and UDIMM memory  ** Advanced ECC-enable DIMMs required	diskette  disk disk disk disk disk disk  disk  disk  disk  disk disk				
Graphics	Matrox® G200eV, integrated in Integrated Management Module (IMM), one VGA DB-15 in rear; 128MB, shared with IMM; Maximum resolution: 1024x768@85Hz	Business black color; metal case  8.6"W x 21.3"D x 17.3"H  218mm W x 540mm D x 440mm H  6.0"W x 21.0"				
Disk bays Disk Controller	11U: four 3.5" simple-swap (SS) SATA disk bays 12U/16U: four 3.5" hot-swap (HS) SATA/SAS disk bays 11U/12U: ServeRAID®-BR10il, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1 support 16U: ServeRAID M1015, PCI Express bus, SATA 6Gb/s,	• 56 lb (25.2kg) max configuration     • Toolless side cover removal				
Optical Diskette Ethernet	SAS 6Gb/s, RAID 0, 1, 10 support Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s None (use USB port) Two gigabit ethernet ports***, Intel 82574L *** One port shared with system management	Disk Bays				
Chipset	Intel 3420 Chipset, Platform Controller Hub (PCH) for PCI, ethernet and USB	Bay 1 5.25",1.6" high, external, std optical Bay 2 5.25",1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional diskette Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk  Expansion Slots  Slot 1: full-length, full-height, PCI Express x8 Slot 2: full-length, full-height, PCI Express x8 Slot 3: full, PCI Express x4 (x1 electrical) Slot 4: full, 32-bit PCI				
Extender card Front ports Rear ports Internal ports Diagnostics Systems mgmt Prerequisites	None Two USB 2.0 Four USB 2.0, external monitor (VGA DB-15), one ethernet (RJ-45), one ethernet/system management (RJ-45), serial (9-pin) One USB 2.0 for tape drive or embedded hypervisor Diagnostic LEDs (error LEDs for fans and memory) Trusted Platform Module (TPM) 1.2 support, IPMI 2.0-compliant 11U: IMM Standard, upgradeable to IMM Premium 12U/16U: IMM Premium Monitor, SATA/SAS disk, OS					
Keyboard Mouse Power supply(s) Cooling	None (use USB port) None (use USB port) One 401 watts standard, one maximum, universal, auto switch, no hot-swap, no redundancy Three fans std (power supply, system, hard drive cage), three maximum, no hot-swap, no redundancy	Slot 5: full, 32-bit PCI  Power-On Hotkey  • Setup Utility: F1 at startup  • Diagnostic: F2 at startup  • Network Boot: F12 at startup  • RAID Configuration Utility: Ctrl+C at startup				
Virtualization rea	Virtualization ady, hypervisor connector embedded	Security				
Single-rank RDI Dual-rank RDIM	Max memory capacity (RDIMM models)  MM: 6GB with six 1GB PC3-10600 DDR3 RDIMMs (using 67Y0014)	Boot sequence control     Boot without keyboard, mouse, diskette     Serial port I/O control				
12U/16U: 3.5" S	Max internal capacity with four 1TB SS SATA disks (using 67Y1380) ATA HS: 4.0TB with four 1TB HS SATA disks (using 45J6204) AS HS: 2.4TB with four 600GB HS SAS disks (using 67Y1386)	USB port disablement (all)     Software Management Tools     ThinkServer EasyStartup				
	Limited Warranty <sup>1</sup>	ThinkPlus Priority Support, 90-day Trial				
selected part  ⇒ ThinkPlus™ s  • Onsite serv  • Post warra		RoHS-compliant   Accessories   450GB 3.5" 6Gb/s SAS Disk HS (15000 rpm)   67Y1386   67Y1386   600GB 3.5" 6Gb/s SAS Disk HS   67Y1386   67Y1386				

Type- Slot x Proc- model bay essor(s)					Memory speed		RAID battery		Disk type	RAID Int	IMM Premium	Power supply(s)	Avail date
6530-13U 5x7 X3450 * Multi = RAID-0/1/5/6/10		4	1x4GB	RDIMM	1333MHz	3.5"	None	4xHot-swap	SATA/SAS <sup>4</sup>	Multi*	IMM	2x430W	Nov 09

- This model has a 3-year limited warranty¹
   This small and medium business (SMB) model is part of the US TopSeller™ Program

Processor(s)	Up to one processor, one processor standard, Intel® Xeon® Processor X3450 with quad-core, 2.5GT/s DMI, Turbo Boost Technology, Hyper-Threading Technology and Intel 64, 1333MHz DDR3 memory controller, 8MB cache One LGA1156 socket	Front Rear  Optical Optical Optical					
Memory	4GB std, RDIMM, PC3-10600 1333MHz DDR3, Advanced ECC**, Memory Mirroring Six 240-pin DIMM sockets, supports up to 6 single- or dual-rank RDIMMs, or up to 4 quad-rank RDIMMs ** Advanced ECC-enable DIMMs required	diskette					
Graphics	Matrox® G200eV, integrated in Integrated Management Module (IMM), one VGA DB-15 in rear; 128MB, shared with IMM; Maximum resolution: 1024x768@85Hz	5 - PCI					
Disk bays Disk Controller Optical Diskette Ethernet	Four 3.5" hot-swap (HS) SATA/SAS disk bays ServeRAID-MR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1, 5, 6, 10 support Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s None (use USB port) Two gigabit ethernet ports***, Intel 82574L *** One port shared with system management	Tower mechanical, rack-mountable to 5U rack Business black color; metal case 8.6"W x 21.3"D x 17.3"H 218mm W x 540mm D x 440mm H 56 lb (25.2kg) max configuration Toolless side cover removal Rack shelf support					
Chipset	Intel 3420 Chipset, Platform Controller Hub (PCH) for PCI, ethernet and USB						
Extender card Front ports Rear ports Internal ports Diagnostics Systems mgmt Prerequisites	None Two USB 2.0 Four USB 2.0, external monitor (VGA DB-15), one ethernet (RJ-45), one ethernet/system management (RJ-45), serial (9-pin) One USB 2.0 for tape drive or embedded hypervisor Diagnostic LEDs (error LEDs for fans and memory) IMM Premium, Trusted Platform Module (TPM) 1.2 support, IPMI 2.0-compliant Monitor, SATA/SAS disk, OS						
Keyboard Mouse Power supply(s) Cooling	None (use USB port) None (use USB port) Two 430 watts standard, two maximum, rear access, hot-swap, redundant with two power supplies Four fans std (two power supply fans, system fan, hard drive cage), four maximum, no hot-swap, no redundancy	Disk Bays  Bay 1 5.25",1.6" high, external, std optical Bay 2 5.25",1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional diskette Bay 4 3.5", 1" high, external, optional disk					
Dual-rank RDIM	Max memory capacity  IMM: 6GB with six 1GB PC3-10600 DDR3 RDIMMs (using 67Y0014)	Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk  Expansion Slots  Slot 1: full-length, full-height, PCI Express x8 Slot 2: full-length, full-height, PCI Express x8					
	Max internal capacity 4.0TB with four 1TB HS SATA disks (using 45J6204) 2.4TB with four 600GB HS SAS disks (using 67Y1386)	Slot 2: full-length, full-height, PCI Express x8 Slot 3: full, PCI Express x4 (x1 electrical) Slot 4: full, 32-bit PCI Slot 5: full, 32-bit PCI					
Virtualization rea	Virtualization ady, hypervisor connector embedded	Software Management Tools  ThinkServer EasyStartup					
146GB <sup>2</sup> 3.5" SA 450GB 3.5" 6Gb 1TB 3.5" SATA I 600GB 3.5" 6Gb	Accessories  DDR3 ECC RDIMM (4Rx8) 67Y0125 S HS (15000 rpm) 45J6211 b/s SAS Disk HS (15000 rpm) 67Y1385 Disk HS 45J6204 b/s SAS Disk HS 67Y1386 es at lenovo.com/accessories	Power-On Hotkey  • Setup Utility: F1 at startup  • Diagnostic: F2 at startup  • Network Boot: F12 at startup  • RAID Configuration Utility: Ctrl+C at startup  Security					
		Side cover lock (ships with two identical keys)     prohibits removal of front panel and disks     Power-on password					
selected parts	Limited Warranty¹ and labor placeable Unit (CRU) parts only (with limited onsite service for s³, 8 am - 5 pm, Mon - Fri coverage excluding holidays) services available; see lenovo.com/thinkplus/warranty	Administrator password     Boot sequence control     Boot without keyboard, mouse, diskette     Serial port I/O control     USB port disablement (all)					
<ul><li>Onsite serv</li><li>Post warrar</li></ul>	rice upgrade options (in eligible locations) <sup>7</sup> nty maintenance services	ThinkPlus Priority Support, 90-day Trial					
24 hour x 7 da	ay <sup>14</sup> toll-free support during the warranty period¹ via 800-426-7378	RoHS-compliant					

Type- model	Slot x bay		GHz		Memory DIMMs	Memory type	Memory speed	Disk size	RAID battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s	Avail ) date
6524-11L	J 5x7	Pentium G6950	2.80	2	1x1GB	UDIMM	1333MHz	3.5"	None	4xSimple-swap	SATA	0/1	None	401W	Jan 10

- This model has a 1-year limited warranty
   This small and medium business (SMB) m
- This small and medium business (SMB) model is part of the US TopSeller™ Program

	This small and medium business (SMB) model is part of the US To	pSeller™ Program			
Processor(s)  Implementation Memory	Up to one processor, one processor standard, Intel® Pentium® Processor G6950 with dual-core, Intel 64, 1066MHz DDR3 memory controller, 3MB cache One LGA1156 socket  1GB std, UDIMM, PC3-10600 1333MHz DDR3*, Advanced ECC**, Memory Mirroring Four 240-pin DIMM sockets, 16GB max (Pending availability of 4GB UDIMM), std memory in 1 socket, 3 sockets available  * System automatically clocks down for processor with 1066MHz DDR3 memory controller  ** Advanced ECC-enable DIMMs required	Front  Rear  Optical Optical Odiskette  disk disk disk disk disk disk disk dis			
Graphics	Matrox® G200eV, integrated in Integrated Management Module (IMM), one VGA DB-15 in rear; 128MB, shared with IMM; Maximum resolution: 1024x768@85Hz	disk	5 - PCI		
Disk bays Disk Controller Optical Diskette Ethernet	Four 3.5" simple-swap (SS) SATA disk bays ServeRAID®-BR10il, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1 support DVD-ROM DL SATA 1.5Gb/s 16-48X Max Drive None (use USB port) Two gigabit ethernet ports***, Intel 82574L *** One port shared with system management	Tower mechanical Business black color; metal case 8.6"W x 21.3"D x 17.3"H 218mm W x 540mm D x 440mm H 56 lb (25.2kg) max configuration Toolless side cover removal			
Chipset	Intel 3420 Chipset, Platform Controller Hub (PCH) for PCI, ethernet and USB				
Extender card Front ports Rear ports Internal ports Diagnostics Systems mgmt Prerequisites	None Two USB 2.0 Four USB 2.0, external monitor (VGA DB-15), one ethernet (RJ-45), one ethernet/system management (RJ-45), serial (9-pin) One USB 2.0 for tape drive or embedded hypervisor Diagnostic LEDs (error LEDs for fans and memory) IMM standard, Trusted Platform Module (TPM) 1.2 support, IPMI 2.0-compliant Monitor, SATA disk, OS				
Keyboard Mouse Power supply(s) Cooling	None (use USB port) None (use USB port) One 401 watts standard, one maximum, universal, auto switch, no hot-swap, no redundancy Three fans std (power supply, system, hard drive cage), three maximum, no hot-swap, no redundancy	Bay 1 5.25",1.6" high, e	sk Bays xternal, std optical		
160GB <sup>2</sup> 3.5" SA 250GB 3.5" SAT 500GB 3.5" SAT 750GB 3.5" SATA S	Accessories  D DDR3 1333MHz UDIMM 67Y0122  TA Simple-swap 45J6195  TA Simple-swap 45J6197  TA Simple-swap 45J6197  TA Simple-swap 45J6198	Baý 2 5.25",1.6" high, e Bay 3 3.5", 1" high, e Bay 4 3.5", 1" high, e Bay 5 3.5", 1" high, e Bay 6 3.5", 1" high, e Bay 7 3.5", 1" high, e Bay 7 3.5", 1" high, e  Expan Slot 1: full-length, full-heig Slot 2: full-length, full-heig	xternal, optional optical xternal, optional diskette xternal, optional disk sion Slots ht, PCI Express x8 ht, PCI Express x8		
		Slot 3: full, PCI Express x4 (x1 electrical) Slot 4: full, 32-bit PCI Slot 5: full, 32-bit PCI			
So ThinkServer Ea	oftware Management Tools asyStartup	Setup Utility: F1 at startup     Diagnostic: F2 at startup     Network Boot: F12 at start     RAID Configuration Utility:	rup		
	ady, hypervisor connector embedded	Se	ecurity		
Max internal ca	a <b>pacity</b> 1TB SS SATA disks (using 67Y1380)	Side cover lock (ships wit - prohibits removal of from Parker on page years)	th two identical keys) nt panel and disks		
<ul> <li></li></ul>	Limited Warranty <sup>1</sup>	Power-on password     Administrator password     Boot sequence control     Boot without keyboard, m     Serial port I/O control     USB port disablement (al			
<ul><li>Onsite services</li><li>Post warrant</li></ul>	vice upgrade options (in eligible locations) <sup>7</sup> nty maintenance services	ThinkPlus Priority Support,	90-day Trial		
	ay <sup>14</sup> toll-free support during the warranty period <sup>1</sup> via 800-426-7378	RoHS-compliant			

# ThinkServer™ TS200, RS210 Accessories

Partial list of accessories supported	on Lenovo® ThinkServer
TS200, RS210.	

ThinkServer Ready accessories are available through Lenovo Business Partners. Locate a Business Partner near you at: bplocator.lenovo.com

Memory				
1GB PC3-10600 DDR3	1333MHz UDIMM	67Y0122		
2GB PC3-10600 DDR3	1333MHz UDIMM	67Y0123	ann	11/24/09
1GB PC3-10600 DDR3	RDIMM (1R x 8)	67Y0014	ann	05/05/09
2GB PC3-10600 DDR3	RDIMM (2R x 8)	67Y0124	ann	11/24/09
4GB PC3-8500 DDR3 F	RDIMM (4R x 8)		ann	11/24/09
53 Mixing of UDIMM ar	nd RDIMM is not suppo	ort		
4GB PC3-8500 DDR3 F	RDIMM (2R x 8) RDIMM (4R x 8) nd RDIMM is not suppo	67Y0125		

Backup	
IBM® RDX 160GB Cartridge	67Y0169 ann 11/10/09
IBM RDX 320GB Cartridge	67Y0170 ann 11/10/09
IBM RDX 500GB Cartridge	67Y0171 ann 11/10/09
IBM DDS Generation 6 5-Pack Media	67Y1377 ann 11/10/09
IBM LTO Generation 3 5-Pack Media	67Y1379 ann 11/10/09

Connectivity			
IBM 8Gb FC Single-port HBA by QLogic®	67Y0172	ann	11/10/09
IBM 8Gb FC Dual-port HBA by QLogic	67Y0173	ann	11/10/09
IBM 8Gb FC Single-port HBA by Emulex®	67Y0174	ann	11/10/09
IBM 8Gb FC Dual-port HBA by Emulex	67Y0175	ann	11/10/09
IBM 8Gb FC Single-port HBA by Brocade®	67Y0176	ann	11/10/09
IBM 8Gb FC Dual-port HBA by Brocade	67Y0177	ann	11/10/09

ThinkServer IBM RAID controller		
SAS 3Gb HBA Controller V2	67Y0183 ann 11/10/09	9
ServeRAID® M1015	67Y1368 ann 12/08/09	9
ServeRAID M5015	67Y0184 <i>ann 11/10/0</i> 9	9
ServeRAID M5014	67Y0185 ann 11/10/09	9
ServeRAID M1000 Series Adv Feature Key	67Y1369 ann 12/08/09	9
ServeRAID M5000 Series Battery Kit	67Y0186 <i>ann 11/10/0</i> 9	9
ServeRAID M5000 Series Adv Feature Key	67Y0188 ann 12/08/09	9

Keyboard		
Preferred Pro USB Keyboard	73P5220	ann 06/21/05

Mouse			
Lenovo Optical Mouse (USB)	06P4069	ann	05/21/03

Disk D	

2.5" SAS Hot-swap (HS):	
73GB <sup>2</sup> 2.5" SAS SFF HS (15000 rpm)	67Y0115 ann 05/05/09
146GB 2.5" SAS SFF HS (10000 rpm)	67Y0116 ann 05/05/09
146GB 2.5" SAS SFF HS (15000 rpm)	67Y0117 ann 05/05/09
300GB 2.5" SAS SFF HS (10000 rpm)	67Y0118 ann 05/05/09
` ' '	
O FIL CATA LIST SUISE (LIC)	

2.5 SAIA HUI-SWAP (HS):	
300GB 2.5" SATA ŚFF HS (10000 rpm)	67Y0002 ann 05/05/09
160GB 2.5" SATA SFF HS (7200 rpm)	67Y0120 ann 09/08/09
500GB 2.5" SATA SFF HS (7200 rpm)	67Y0121 ann 09/08/09

3.5" SAS Hot-swap (H	(S):		
146GB 3.5" SAS ĤS (	15000 rpm)	45J6211	ann 09/30/08

3.5" 6Gb/s SAS HS: 300GB 3.5" SAS HS (15000 rpm) 450GB 3.5" SAS HS (15000 rpm) 600GB 3.5" SAS HS (15000 rpm)	67Y1384 ann 01/26/10 67Y1385 ann 01/26/10 67Y1386 ann 01/26/10
3.5" SATA Hot-swap (HS):	

3.3 3AIA HUESWAP (H3).			
160GB 3.5" SATA HS (7200 rpm)	45J6200	ann	09/30/08
250GB 3.5" SATA HS (7200 rpm)	45J6201	ann	09/30/08
500GB 3.5" SATA HS (7200 rpm)	45J6202	ann	09/30/08
750GB 3.5" SATA HS (7200 rpm)	45J6203	ann	09/30/08
1TB 3.5" SATA HS (7200 rpm)	45J6204	ann	09/30/08

3.5" SATA Simple-swap:			
160GB 3.5" SATA Simple-swap (7200 rpm)	45J6195	ann	09/30/08
250GB 3.5" SATA Simple-swap (7200 rpm)	45J6196	ann	09/30/08
500GB 3.5" SATA Simple-swap (7200 rpm)	45J6197	ann	09/30/08
750GB 3.5" SATA Simple-swap (7200 rpm)	45J6198	ann	09/30/08
1TB 3.5" SATA Simple-swap (7200 rpm)	67Y1380	ann	11/24/09

For more information on server accessories, please visit: www.lenovo.com/support/accessories www.lenovo.com/support/thinkserveraccessories www.lenovo.com/support/security

Other accessories at www.lenovo.com/accessories

Accessories Guide pdf at www.lenovo.com/accessoriesguide

# ThinkServer™ TS200, RS210 - ThinkPlus™ Services

# Partial list of Lenovo® ThinkPlus Services for ThinkServer

For more information see:

http://www.lenovo.com/services\_warranty/us/en/index.html

## **Training classes**

• The basics on components, diagnostics, troubleshooting, and managing Lenovo servers, delivered in interactive online format

Online Training, Understanding Lenovo Servers	45K4080
Online Training, Understanding Systems Management	45K4081
Installation, ThinkServer Hardware Only	45K4082

# ThinkPlus service upgrade options7

LOR = Lenovo Onsite Repair

TS200 with 1-year warranty	
3-year LOR 9x5 Next Business Day	45K4055
3-year LOR 9x5 4 hour response	45K4056
4-year LOR 9x5 Next Business Day	51J0723
4-year LOR 9x5 4 hour response	51J0724
5-year LOR 9x5 Next Business Day	51J0725
5-year LOR 9x5 4 hour response	51J0726

### **TS200 with 3-year warranty** 3-year LOR 9x5 4 hour response 4-year LOR 9x5 Next Business Day 45K4059 51J0727 51J0728 4-year LOR 9x5 4 hour response 5-year LOR 9x5 Next Business Day 51J0729 5-year LOR 9x5 4 hour response 51J0730

RS210 with 1-year warranty	
3-year LOR, 9x5 Next Business Day	45K4069
3-year LOR, 4 hour response	45K4070
4-year LOR 9x5 Next Business Day	51J0739
4-year LOR 9x5 4 hour response	51J0740
5-year LOR 9x5 Next Business Day	51J0741
5-year LOR 9x5 4 hour response	51J0742

RS210 with 3-year warranty	
3-year LOR, 4 hour response	45K4073
4-year LOR 9x5 Next Business Day	51J0743
4-year LOR 9x5 4 hour response	51J0744
5-year LOR 9x5 Next Business Day	51J0745
5-year LOR 9x5 4 hour response	51J0746

# **ThinkPlus Priority Support**

- 9x5 Next Business Day response Lenovo Onsite Repair
- 24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
- 24x7 support with priority routing and advanced level technicians

15200 with 1-year warranty	
3-year Priority Support	45K4057
3-year Priority 4 Support	45K4058

TS200 with 3-year warranty

3-year Priority Support 3-year Priority 4 Support 45K4060 45K4061

**RS210 with 1-year warranty** 3-year Priority Support 3-year Priority 4 Support 45K4071 45K4072

**RS210 with 3-year warranty** 3-year Priority Support 3-year Priority 4 Support 45K4074 45K4075

# ThinkPlus Priority Support with Hard Disk Drive Retention

- 9x5 Next Business Day response Lenovo Onsite Repair
- 24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
  24x7 support with priority routing and advanced level technicians
  Hard Disk Drive Retention (HDDR) means customer keeps disk

# HDDR = Hard Disk Drive Retention

TS200 with 1-year warranty	
3-year Priority Support with HDDR	45K5441
3-year Priority 4 Support with HDDR	45K5442
TS200 with 3-year warranty	

3-year Priority Support with HDDR 45K5443 3-year Priority 4 Support with HDDR 45K5444

RS210 with 1-year warranty 3-year Priority Support with HDDR 3-year Priority 4 Support with HDDR 45K5449 45K5450

RS210 with 3-year warranty 3-year Priority Support with HDDR 3-year Priority 4 Support with HDDR 45K5451 45K5452

# **ThinkPlus Productivity**

- Priority Support
- Online Training, Understanding Lenovo Servers
- One-time hardware installation

3-year ThinkPlus Productivity, TS200 (1-year)	45K4084
3-year ThinkPlus Productivity, TS200 (3-year)	45K4086
3-year ThinkPlus Productivity, RS210 (1-year)	45K4092
3-year ThinkPlus Productivity, RS210 (3-year)	45K4094

# ThinkServer.







Lenovo ThinkServer TD230

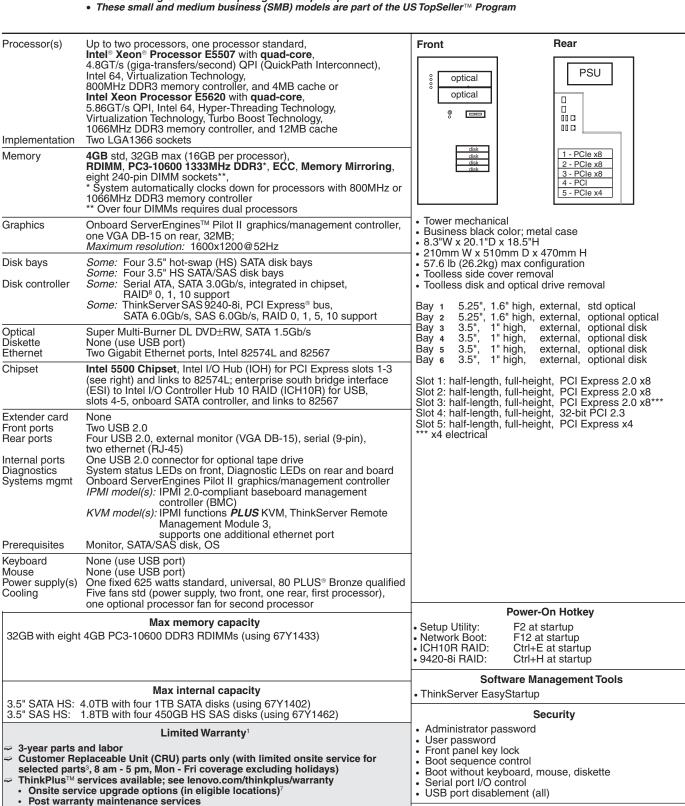
Lenovo ThinkServer TD230



Lenovo ThinkServer TD230 (Direct Cable)

Name	Type- model	Slot x bay	Proc- essor(s)	GHz	Cores	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Ethernet	Avail date
TD230 TD230			1 x E5507 1 x E5620					4 x Hot-swap 4 x Hot-swap	ICH10R 9240-8i	SATA SATA/SAS <sup>4</sup>	0/1/10 0/1/5/10	IPMI KVM	2xGb 2xGb	

- These models have a 3-year limited warranty<sup>1</sup>
- Flexible and green tower computing at value price point



RoHS-compliant

24 hour x 7 day14 toll-free support during the warranty period1 via 800-426-7378

Type Name mode			roc- sor(s)	GH-	Core		lemory	Disk(s)	Disk size		Cr	Disk ontroller	Disk type	SATA optical	RAID Int	System	Etherne	Avai
			. ,					. ,		5 x Direct Cabl				DVD±RW			2xGb	
	• Fle	xible	and gi	reen	towe	r co	omputi	arranty¹ ng at value 'SMB) mod		e point part of the US To	opS	Seller™ P	Program					
Processor(s)	Intel® 4.8G Intel 6 800M	<b>Χεο</b> Γ/s (g 64, Vi Hz D	n® Pro jiga-tra irtualiza	ces insfe atior nem	sor E rs/sed Tech ory co	550 con	<b>06</b> with d) QPI logy,	r standard, <b>quad-cor</b> (QuickPat nd 4MB ca	e, th Inte	rconnect),	F	\$ <u> </u>	otical			SU		
Memory	2GB : RDIM eight * Syst	std, 3   <b>M</b> , <b>P</b>  240- <sub> </sub>  tem a  3 mer	B2GB n C3-100 pin DIN automa mory c	nax 600 MM s atica	(16GE 1333I socket ly cloo	MH ts** cks	<b>z DDR</b> down			r <b>y Mirroring</b> , vith 800MHz		© ©	disk disk disk disk		1 - PCIe 2 - PCIe 3 - PCIe	e x8		
Graphics	one V	'GA [	ServerE OB-15 ( <i>resolu</i> i	on r	ear, 32	2M	B;	•	nagem	nent controller,			disk		4 - PCI 5 - PCI			
SATA disk(s) Disk bays Disk controller	Five 3 Six S Seria	3.5" S ATA d I ATA	connec	isk t tors 3.0	ays, r for op Gb/s,	no l otic	not-swa als and	ap, direct c I disks, I in chipse	•	DC)	•	8.3"W x 210mm 57.6 lb	s black 20.1"D W x 510 (26.2kg)	color; metal x 18.5"H )mm D x 47 max config	0mm H uration			
Optical Diskette Ethernet	None	(use	USB p	oort)				TA 1.5Gb/s		Э	•	Toolless	disk an	ver removal d optical dr	ive remo			
Chipset	Intel (see r	5500 right) to In	Chips and lir	et, Inks to	ntel I/ o 825 troller	O I 74I Hu	Hub (IC L, ente	H) for PC	Express th brid	ess slots 1-3 ge interface or USB, 7	E E	Bay 2 Bay 3 Bay 4 Bay 5	5.25", 1. 3.5", 1' 3.5", 1' 3.5". 1'	' hiah. ext	ternal, ternal, ternal, ternal,	optiona std disk optiona optiona	al optical ( al disk al disk	
Extender card Front ports Rear ports Internal ports Diagnostics Systems mgmi	two e One l Syste t Onbo IPMI	JSB 2 USB thern JSB 2 m sta ard S 2.0-c	2.0, ex let (RJ- 2.0 cor atus LE ServerE	-45) nned EDs Engli Int b	tor for on fro nes Pi asebo	r op ont, ilot oard	tional Diagno II grap	A DB-15), stape drive ostic LEDs hics/management co	on re	ar ent controller,	000000	Bay 7 S Slot 1: ha Slot 2: ha Slot 3: ha Slot 4: ha	lf-length lf-length lf-length lf-length	fligh, ext full-height full-height full-height full-height full-height	, PCI E: , PCI E: , 32-bit	optiona xpress xpress xpress PCI 2.3	2.0 x8 2.0 x8 2.0 x8 2.0 x8**	*
Keyboard Mouse Power supply(s Cooling	None s) One f Five f	(use ixed ans s	std (pov	oort) atts : wer	standa supply	y, tv	vo fron	sal, 80 PL t, one rear d processo	, first <sub>l</sub>	Bronze qualified processor),								
Intel Xeon E55 2GB PC3-106 ThinkServer T 250GB 3.5" S More accesso	600 DDR: D230 SA ATA (720	3 133 (TA R (0 rpr	33 MHz AID 5 n)	n Ki z RD Upg	IMM	ori	es	6 6	7Y144 7Y143 7Y145 7Y140	32 59								
Other accesso	ories at <b>l</b> e	enov	o.com	/acc	essor	ies												
									Power-On Hotkey  • Setup Utility: F2 at startup  • Network Boot: F12 at startup  • ICH10R RAID: Ctrl+E at startup									
32GB with eig	ht 4GB F	PC3-1			-		apacity Ms (us		33)			Thisto		tware Mana	agemen	t Tools	<b>3</b>	
5.0TB with fiv	e 1TB S/	ATA d					apacity 2)	/			ThinkServer EasyStartup     Security							
Limited Warranty¹  1-year parts and labor  Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays)  ThinkPlus™ services available; see lenovo.com/thinkplus/warranty  Onsite service upgrade options (in eligible locations)²  Post warranty maintenance services  24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378										•	Serial p	assword anel lock quence thout ke ort I/O c	assword cout control yboard, mo	·	kette			

Name	Type- model	Slot x bay	Proc- essor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Ethernet	Avail date
TD230	1040-11U	5x7	1 x E5503	2.00	2	1x2GB	1333MHz	3.5"	5 x Direct Cable	ICH10R	SATA	0/1/10	IPMI	2xGb	Jul 10
TD230	1040-12U	5x6	1 x E5503	2.00	2	1x2GB	1333MHz	3.5"	4 x Hot-swap	ICH10R	SATA	0/1/10	IPMI	2xGb	Jul 10
TD230	1040-13U	5x6	1 x E5506	2.13	4	1x4GB	1333MHz	3.5"	4 x Hot-swap	9240-8i	SATA/SAS4	0/1/5/10	IPMI	2 x Gb	Jul 10

- These models have a 3-year limited warranty
  Flexible and green tower computing at value price point

Up to two processors, one processor standard, Intel® Xeon® Processor E5503 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 900MHz DDP3 proposus contrology	Front - (Hot-swap) Rear		
Hard Xeon Processor E5506 with quad-core, 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache Two LGA1366 sockets	optical optical optical		
2GB or 4GB std, 32GB max (16GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring, eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Over four DIMMs requires dual processors	1 - PCle x8   2 - PCle x8   3 - PCle x8   4 - PCl   5 - PCle x4		
Onboard ServerEngines™ Pilot II graphics/management controller, one VGA DB-15 on rear, 32MB;  Maximum resolution: 1600x1200@52Hz	Tower mechanical Business black color; metal case 8.3"W x 20.1"D x 18.5"H		
Some: Five 3.5" SATA disk bays, no hot-swap, direct cable (DC) Some: Four 3.5" hot-swap (HS) SATA disk bays Some: Four 3.5" HS SATA/SAS disk bays Some: Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, RAID® 0, 1, 10 support Some: ThinkServer SAS 9240-8i, PCI Express® bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 10 support DC Model(s): Six SATA connectors for opticals and disks	O.3 W X 20.1 D X 10.5 H     210mm W x 510mm D x 470mm H     57.6 lb (26.2kg) max configuration     Toolless side cover removal     Toolless optical drive removal      Hot-swap model(s):     Bay 1 5.25",1.6" high, external, std optical     Bay 2 5.25",1.6" high, external, optional optical     Bay 3 3.5", 1" high, external, optional disk		
Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s None (use USB port) Two Gigabit Ethernet ports, Intel 82574L and 82567	Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk		
Intel 5500 Chipset, Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right) and links to 82574L, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, slots 4-5, onboard SATA controller, and links to 82567	Direct cable model(s):  Bay 1 5.25", 1.6" high, external, std optical  Bay 2 5.25", 1.6" high, external, optional optical  Bay 3 3.5", 1" high, external, optional disk		
None Two USB 2.0 Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45) One USB 2.0 connector for optional tape drive System status LEDs on front, Diagnostic LEDs on rear Onboard ServerEngines Pilot II graphics/management controller,, IPMI 2.0-compliant baseboard management controller (BMC) Monitor, SATA/SAS disk, OS	Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk Slot 1: half-length, full-height, PCI Express 2.0 x8 Slot 2: half-length, full-height, PCI Express 2.0 x8 Slot 3: half-length, full-height, PCI Express 2.0 x8*** Slot 4: half-length, full-height, 32-bit PCI 2.3		
None (use USB port) None (use USB port) One fixed 625 watts standard, universal, 80 PLUS® Bronze qualified Five fans std (power supply, two front, one rear, first processor), one optional processor fan for second processor	Slot 5: half-length, full-height, PCI Express x4  *** x4 electrical		
Max memory capacity 4GB PC3-10600 DDR3 RDIMMs (using 67Y1433)	Power-On Hotkey  Setup Utility: F2 at startup Network Boot: F12 at startup ICH10R RAID: Ctrl+E at startup LSI 9420-8i RAID: Ctrl+H at startup		
Max internal capacity 4.0TB with four 1TB SATA disks (using 67Y1402) 5.0TB with five 1TB SATA disks (using 67Y1402)	Software Management Tools  ThinkServer EasyStartup		
1.8TB with four 450B 3.5" SAS disks (using 67Y1462)	Security		
Limited Warranty¹  nd labor  placeable Unit (CRU) parts only (with limited onsite service for  s³, 8 am - 5 pm, Mon - Fri coverage excluding holidays)  ervices available; see lenovo.com/thinkplus/warranty  ice upgrade options (in eligible locations)³  ity maintenance services  sy¹⁴ toll-free support during the warranty period¹ via 800-426-7378	Administrator password     User password     Front panel lock out     Boot sequence control     Boot without keyboard, mouse, diskette     Serial port I/O control     USB port disablement (all)  RoHS-compliant		
	4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache Two LGA1366 sockets  2GB or 4GB std, 32GB max (16GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring, eight 240-pin DIMM sockets**,  * System automatically clocks down for processors with 800MHz DDR3 memory controller  ** Over four DIMMs requires dual processors  Onboard ServerEngines™ Pilot II graphics/management controller, one VGA DB-15 on rear, 32MB;  Maximum resolution: 1600x1200@52Hz  Some: Four 3.5* SATA disk bays, no hot-swap, direct cable (DC)  Some: Four 3.5* HS SATA/SAS disk bays  Some: Four 3.5* SATA 3.0Gb/s, integrated in ICH10R, RAID* 0, 1, 10 support  Some: ThinkServer SAS 9240-8I, PCI Express* bus, SATA 6.0Gb/s, SAS 6.0Gb/s, RAID 0, 1, 5, 10 support  DC Model(s): Six SATA connectors for opticals and disks  Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s  None (use USB port)  Two Gigabit Ethernet ports, Intel 82574L and 82567  Intel 5500 Chipset, Intel I/O Hub (IOH) for PCI Express slots 1-3  (see right) and links to 82574L, enterprise south bridge interface  (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB,  slots 4-5, onboard SATA controller, and links to 82567  None  Two USB 2.0 external monitor (VGA DB-15), serial (9-pin),  two ethernet (RJ-45)  One USB 2.0 connector for optional tape drive  System status LEDs on front, Diagnostic LEDs on rear  Onboard ServerEngines* Pilot II graphics/management controller,  IPMI 2.0-compliant baseboard management controller (BMC)  Max internal capacity  4.0TB with four 1TB SATA disks (using 67Y1402)  1.8TB with four 4508 3.5* SAS disks (using 67Y1402)  1.8TB with four 4508 3.5* SAS disks (using 67Y1402)  1.8TB with four 4508 3.5* SAS disks (using 67Y1402)  1.8TB with four 4508 3.5* SAS disks (using 67Y1402)  1.8TB with four 4508 3.5* SAS disks (using 67Y1402)  1.8TB with four 4508 3.5* SAS disks (using 67Y1402)  1.8TB with		

Name	Type- model	Slot x bay	Proc- essor(s)	GHz	Cores	Memory DIMMs	Disk size	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Ethernet	Avail date
								5 x Direct Cable 4 x Hot-swap	ICH10R ICH10R	SATA SATA	0/1/10 0/1/10	IPMI IPMI	2xGb 2xGb	

- This model has a 1-year limited warranty<sup>1</sup>
   Flexible and green tower computing at value price point

Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5503 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache Two LGA1366 sockets	Front - (Hot-swap)  Rear  optical optical  optical			
Memory	2GB std, 32GB max (16GB per processor), RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring, eight 240-pin DIMM sockets**, * System automatically clocks down for processors with 800MHz DDR3 memory controller ** Over four DIMMs requires dual processors				
Graphics	Onboard ServerEngines™ Pilot II graphics/management controller, one VGA DB-15 on rear, 32MB;  Maximum resolution: 1600x1200@52Hz	4 - PCI 5 - PCle x4			
Disk bays Disk controller	Some: Five 3.5" SATA disk bays, no hot-swap, direct cable (DC) Some: Four 3.5" hot-swap (HS) SATA disk bays Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, RAID <sup>8</sup> 0, 1, 10 support DC Model(s): Six SATA connectors for opticals and disks	<ul> <li>Tower mechanical</li> <li>Business black color; metal case</li> <li>8.3"W x 20.1"D x 18.5"H</li> <li>210mm W x 510mm D x 470mm H</li> <li>57.6 lb (26.2kg) max configuration</li> </ul>			
Optical Diskette Ethernet	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s None (use USB port) Two Gigabit Ethernet ports, Intel 82574L and 82567	Toolless side cover removal     Toolless optical drive removal     Hot-swap model(s):			
Chipset	Intel 5500 Chipset, Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right) and links to 82574L, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB, slots 4-5, onboard SATA controller, and links to 82567	Bay 1 5.25",1.6" high, external, std optical Bay 2 5.25",1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk			
Extender card Front ports Rear ports Internal ports Diagnostics Systems mgmt Prerequisites	None Two USB 2.0 Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45) One USB 2.0 connector for optional tape drive System status LEDs on front, Diagnostic LEDs on rear Onboard ServerEngines Pilot II graphics/management controller, IPMI 2.0-compliant baseboard management controller (BMC) Monitor, SATA/SAS disk, OS	Bay 6 3.5", 1" high, external, optional disk  Direct cable model(s):  Bay 1 5.25", 1.6" high, external, optional optical Bay 2 5.25", 1.6" high, external, optional optical Bay 3 3.5", 1" high, external, optional disk Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk			
Keyboard Mouse Power supply(s) Cooling	None (use USB port) None (use USB port) One fixed 625 watts standard, universal, 80 PLUS® Bronze qualified Five fans std (power supply, two front, one rear, first processor), one optional processor fan for second processor	Slot 1: half-length, full-height, PCI Express 2.0 x8 Slot 2: half-length, full-height, PCI Express 2.0 x8 Slot 3: half-length, full-height, PCI Express 2.0 x8*** Slot 4: half-length, full-height, 32-bit PCI 2.3			
2GB PC3-1060 ThinkServer TD 250GB 3.5" SA More accessori	Accessories  6 Processor Option Kit 67Y1449  0 DDR3 1333 MHz RDIMM 67Y1432  230 SATA RAID 5 Upgrade 67Y1459  IA (7200 rpm) 67Y1400  es on O-ARTsheet  ies at lenovo.com/accessories	Slot 5: half-length, full-height, PCI Express x4  *** x4 electrical			
		Power-On Hotkey			
	Max memory capacity	Setup Utility: F2 at startup     Network Boot: F12 at startup     ICH10R RAID: Ctrl+E at startup			
32GB with eight	4GB PC3-10600 DDR3 RDIMMs (using 67Y1433)	Software Management Tools			
	Max internal capacity 4.0TB with four 1TB SATA disks (using 67Y1402)	ThinkServer EasyStartup			
<ul> <li>1-year parts a</li> <li>Customer Reselected part</li> <li>ThinkPlus™s</li> <li>Onsite serv</li> <li>Post warra</li> </ul>	Limited Warranty¹  and labor placeable Unit (CRU) parts only (with limited onsite service for s³, 8 am - 5 pm, Mon - Fri coverage excluding holidays) services available; see lenovo.com/thinkplus/warranty vice upgrade options (in eligible locations)² nty maintenance services ay¹⁴ toll-free support during the warranty period¹ via 800-426-7378	Security  Administrator password User password Front panel lock out Boot sequence control Boot without keyboard, mouse, diskette Serial port I/O control USB port disablement (all)  RoHS-compliant			
21113di X / d	a, tell neb capport during the marrainty period via 000 420-1010	Trono compilant			

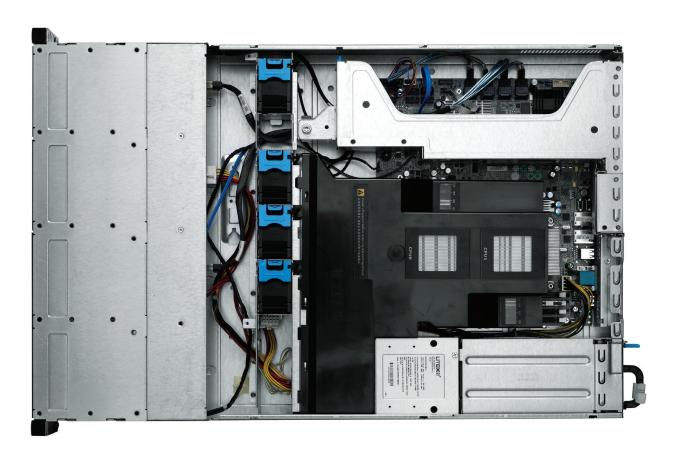




Lenovo ThinkServer RD240



Lenovo ThinkServer RD240



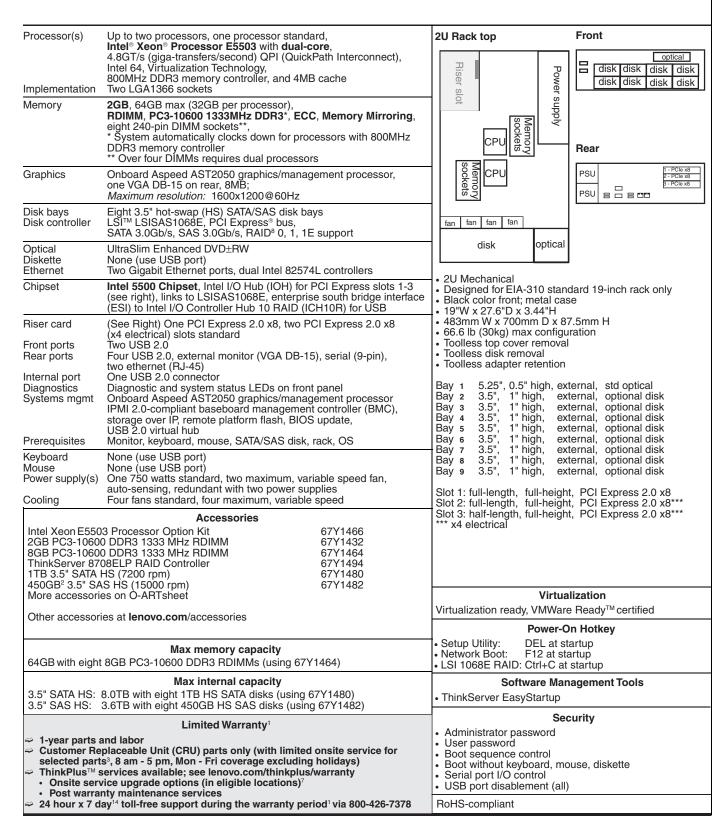
Lenovo ThinkServer RD240

Type- Name model	Slot x Proc- Memory Disk RAID Disk Disl bay essor(s) GHz Cores DIMMs size Battery bays Control	
RD240 1046-11U RD240 1046-12U RD240 1046-13U	3x9 1xE5506       2.13       4       1x2GB 3.5"       8xHot-swap 1068         3x9 1xE5507       2.26       4       1x4GB 3.5"       8xHot-swap 8708         3x9 1xE5620       2.40       4       1x4GB 3.5" Battery       8xHot-swap 8708         3x9 2xE5640       2.66       8       2x4GB 3.5" Battery       8xHot-swap 8708	BE SATA/SAS <sup>4</sup> 0/1/1E IPMI 1x750W 2xGb Jul 10 BE SATA/SAS Multi* KVM 1x750W 2xGb Jul 10 BE SATA/SAS Multi KVM 2x750W 2xGb Jul 10
Processor(s)	Up to two processors, one or two processors standard, Intel® Xeon® Processor E5506 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5507 with quad-core, 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5620 or E5640 with quad-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache Two LGA1366 sockets	2U Rack top  Front    Optical
Memory	2GB, 4GB, or 8GB std, 64GB max (32GB per processor), RDIMM, PC3-10600 1333MHz DDR3**, ECC, Memory Mirroring, eight 240-pin DIMM sockets***, *** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller *** Over four DIMMs requires dual processors	
Disk bays Disk controller	Onboard Aspeed AST2050 graphics/management processor, one VGA DB-15 on rear, 8MB;  Maximum resolution: 1600x1200@60Hz  Eight 3.5" hot-swap (HS) SATA/SAS disk bays  Some: LSI™ LSISAS1068E, PCI Express® bus,  SATA 3.0Gb/s, SAS 3.0Gb/s, RAID®0, 1, 1E support  Some: ThinkServer 8708ELP SAS RAID Controller,  PCI Express bus, SATA 3.0Gb/s, SAS 3.0Gb/s,  RAID 0, 1, 5, 6, 10, 50, 60 support	2U Mechanical     Designed for EIA-310 standard 19-inch rack only     Black color front; metal case     19"W x 27.6"D x 3.44"H     483mm W x 700mm D x 87.5mm H     66.6 lb (30kg) max configuration     Toolless top cover removal
Optical Diskette Ethernet Chipset	Some: Battery backed cache integrated  UltraSlim Enhanced DVD±RW  None (use USB port) Two Gigabit Ethernet ports, dual Intel 82574L controllers  Intel 5500 Chipset, Intel I/O Hub (IOH) for PCI Express slots 1-3	Toolless disk and removal     Toolless adapter retention  Bay 1 5.25", 0.5" high, external, std optical Bay 2 3.5", 1" high, external, optional disk Bay 3 3.5", 1" high, external, optional disk
Riser card Front ports Rear ports Internal port Diagnostics Systems mgmt	(see right), links to LSISAS1068E, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB  (See Right) One PCI Express 2.0 x8, two PCI Express 2.0 x8 (x4 electrical) slots standard  Two USB 2.0  Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)  One USB 2.0 connector  Diagnostic and system status LEDs on front panel  Onboard Aspeed AST2050 graphics/management processor IPMI model(s): IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub  KVM model(s): IPMI functions PLUS KVM supported, 24bit high quality video compression	Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5", 1" high, external, optional disk Bay 7 3.5", 1" high, external, optional disk Bay 8 3.5", 1" high, external, optional disk Bay 9 3.5", 1" high, external, optional disk Say 9 3.5", 1" high, external, optional disk Slot 1: full-length, full-height, PCI Express 2.0 x8 Slot 2: full-length, full-height, PCI Express 2.0 x8**** Slot 3: half-length, full-height, PCI Express 2.0 x8**** x44 electrical
Prerequisites Keyboard Mouse Power supply(s) Cooling 64GB with eight	Monitor, keyboard, mouse, SATĀ/SAS disk, rack, OS  None (use USB port) None (use USB port) One or two 750 watts standard, two maximum, variable speed fan, auto-sensing, redundant with two power supplies Four fans standard, four maximum, variable speed  Max memory capacity  8GB PC3-10600 DDR3 RDIMMs (using 67Y1464)	Virtualization  Virtualization  Virtualization ready, VMWare Ready™ certified  Power-On Hotkey  • Setup Utility: DEL at startup  • Network Boot: F12 at startup  • 1068E RAID: Ctrl+C at startup
3.5" SATA HS: 8 3.5" SAS HS: 3	Max internal capacity  5.0TB with eight 1TB HS SATA disks (using 67Y1480)  6.6TB with eight 450GB HS SAS disks (using 67Y1482)  Limited Warranty¹	Software Management Tools     ThinkServer EasyStartup  Security     Administrator password     User password     Boot sequence control     Poot sequence control     Poot sequence control     Poot sequence control
<ul> <li>ThinkPlus™ s</li> <li>Onsite serv</li> <li>Post warran</li> </ul>	ty maint support during the warranty period via 800-426-7378	Boot without keyboard, mouse, diskette     Serial port I/O control     USB port disablement (all)  RoHS-compliant

Name   model   Day   sescrity   OHt Cores   DitMin   size   Battery   Days   Controller   Type   Int   migmt   supply(s)   Bit   Days   14,5564   Days   D	T	Slot x Proc- Memory Disk RAID Disk Di	Sk Diek DAID Sustana Davier Avei
RB240 1048-12U 3x9 1x55940 2.66 t 4 1x46B 3.5° Battery 8xHot-swap 8708E SATA/SAS Multi* KVM 1x750W 2 PR0240 1048-13U 3x9 2xX5650 266 t 12 x46B 3.5° Battery 8xHot-swap 8708E SATA/SAS Multi* KVM 1x750W 2 Processor (SD 10x10) 10x10 Processo		bay essor(s) GHz Cores DIMMs size Battery bays Cont	roller type Int mgmt supply(s) Ethernet date
Processor(s)  Up to wo processors and er two processors standard, and the composes of the control of the contro	RD240 1048-12l RD240 1048-13l	J 3x9 1xE5640 2.66 4 1x4GB 3.5" Battery 8xHot-swap 870 J 3x9 2xX5650 2.66 12 2x4GB 3.5" Battery 8xHot-swap 870	08E SATA/SAS Multi* KVM 1x750W 2xGb Jul10
Intel® Xeon* Processor E5503 with dual-core, 4.86T/s (tigat-anseriss/second) QPI (Quick-plath Interconnect), Intel 64, Virtualization Technology, Turbo (AME) and AME cache or Intel Xeon Processor E5604 with quad-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, Turbo Boost Technology, Turbo Boost Technology, Virtualization Technology, Virtualization Technology, Turbo Boost Technology, Virtualization Tech			2U Rack top Front
## Court of the Composition of the Controller Court of the Court of Court		Intel® Xeon® Processor E5503 with dual-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or Intel Xeon Processor E5640 with quad-core, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache or Intel Xeon Processor X5650 with six-core, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache	Power supply  CPU  Rear
Second Color   Sec	•		PSU 2-PCIe x8 3-PCIe x8
one VGA DB-15 on rear, BMB.  Maximum resolution: 1600x1200@60Hz  Disk bays Disk controller  Eight 3.5" hot-swap (HS) SATA/SAS disk bays Some: LSI™ SISAST1068E, POI Express' bus, SATA 3.06bs, SAS 3.06bs, RAID*0, 1, 1E support Some: Baltery backed cache integrated  Optical Diskettle None (use USB port) None (use USB port)  Two Gigabit Ethernet ports (See right), links to LSISAS1068E, enterprise south bridge interface (See right), links to LSISAS1068E, enterprise south bridge interface (See right), links to LSISAS1068E, enterprise south bridge interface (See right) one Pote Express 2.0 x8, two PCI Exp	,	RDIMM, PC3-10600 1333MHz DDR3*, ECC, Memory Mirroring, eight 240-pin DIMM sockets**,  * System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller  ** Over four DIMMs requires dual processors	fan fan fan fan
Disk bays Disk controller Disk controller Disk controller Some: Sim LSISAS1068E, PCI Express® bus, SATA 3.0Gb/s, SAS 3.0G	Graphics	one VGA DB-15 on rear, 8MB;	
Diskette None (use USB port)  Ethernet Two Gigabit Ethernet ports, dual Intel 82574L controllers  Chipset Intel 5500 Chipset, Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right), links to LSISAS1068E, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB  Riser card (See Right) One PCI Express 2.0 x8, two PCI Express 2.0 x8 (x4 electrical) slots standard Two USB 2.0  Front ports Rear ports Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)  One USB 2.0 connector Diagnostics Systems mgmt  Internal port Diagnostics Systems mgmt  Prerequisites Wonder(RJ-45)  Prerequisites Monitor, keyboard, mouse, SATA/SAS disk, rack, OS  Keyboard Mouse None (use USB port)  Mouse None (use USB port)  Mouse None (use USB port)  Mouse Sour attached two maximum, variable speed fan, auto-sensing, redundant with two power supplies  Cooling Max memory capacity  64GB with eight 8GB PC3-10600 DDR3 RDIMMs (using 67Y1464)  Limited Warranty¹  Bay \$ 3.5", 1" high, external, optional dis Bay \$ 3.5", 1" high, external, op		Some: LSI™ LSISAS1068E, PCI Express® bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID® 0, 1, 1E support Some: ThinkServer 8708ELP SAS RAID Controller, PCI Express bus, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID 0, 1, 5, 6, 10, 50, 60 support	<ul> <li>Black color front; metal case</li> <li>19"W x 27.6"D x 3.44"H</li> <li>483mm W x 700mm D x 87.5mm H</li> <li>66.6 lb (30kg) max configuration</li> <li>Toolless top cover removal</li> <li>Toolless disk removal</li> </ul>
Chipset Intel 5500 Chipset, Intel I/O Hub (IOH) for PCI Express slots 1-3 (see right), links to LSISAS106BE, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 RAID (ICH10R) for USB  Riser card (See Right) One PCI Express 2.0 x8, two PCI Express 2.0 x8 (x4 electrical) slots standard  Front ports Two USB 2.0 sternal monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)  Internal port Diagnostics Systems mgmt  Internal port Diagnostics Systems mgmt  We othernet (RJ-45)  One USB 2.0 connector Diagnostics Systems as the proposition of th	Diskette	None (use USB port)	Bay 2 3.5", 1" high, external, optional disk
Riser card  (See Right) One PCI Express 2.0 x8, two PCI Express 2.0 x8 (x4 electrical) slots standard  Front ports Rear ports Four USB 2.0 Rear ports Four USB 2.0 centernal monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45)  Internal port Diagnostics Systems mgmt  Onboard Aspeed AST2050 graphics/management processor IPMI model(s): IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub  KVM model(s): IPMI functions PLUS KVM supported, 24bit high quality video compression  Prerequisites  Monitor, keyboard Mouse Power supply(s)  None (use USB port) One or two 750 watts standard, two maximum, variable speed fan, auto-sensing, redundant with two power supplies Four fans standard, four maximum, variable speed  Max memory capacity 64GB with eight 8GB PC3-10600 DDR3 RDIMMs (using 67Y1464)  Max internal capacity 3.5" SATA HS: 8.0TB with eight 1TB HS SATA disks (using 67Y1480) 3.5" SASA HS: 3.6TB with eight 15D SASA disks (using 67Y1482)  Limited Warranty¹  Bay 7 3.5" 1" high, external, optional dis Bay 9 3.5", 1" high, external, op	Chipset	(see right), links to LSISAS1068E, enterprise south bridge interface	Bay 4 3.5", 1" high, external, optional disk Bay 5 3.5", 1" high, external, optional disk Bay 6 3.5". 1" high, external, optional disk
None (use USB port) None (use USB port) Power supply(s) Cooling  Max memory capacity 64GB with eight 8GB PC3-10600 DDR3 RDIMMs (using 67Y1464)  Max internal capacity 3.5" SATA HS: 8.0TB with eight 1TB HS SATA disks (using 67Y1480) 3.5" SAS HS: 3.6TB with eight 450GB HS SAS disks (using 67Y1482)  Limited Warranty¹  None (use USB port) None (use USB port) None (use USB port) None (use USB port) Virtualization Virtualization ready, VMWare Ready™ certified  Power-On Hotkey  Setup Utility: DEL at startup Network Boot: F12 at startup Net	Front ports Rear ports Internal port Diagnostics Systems mgmt	(x4 electrical) slots standard Two USB 2.0 Four USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45) One USB 2.0 connector Diagnostic and system status LEDs on front panel Onboard Aspeed AST2050 graphics/management processor IPMI model(s): IPMI 2.0-compliant baseboard management controller (BMC), storage over IP, remote platform flash, BIOS update, USB 2.0 virtual hub KVM model(s): IPMI functions PLUS KVM supported, 24bit high quality video compression	Bay 8 3.5", 1" high, external, optional disk Bay 9 3.5", 1" high, external, optional disk  Slot 1: full-length, full-height, PCI Express 2.0 x8 Slot 2: full-length, full-height, PCI Express 2.0 x8*** Slot 3: half-length, full-height, PCI Express 2.0 x8***
Power supply(s) One or two 750 watts standard, two maximum, variable speed fan, auto-sensing, redundant with two power supplies Cooling Four fans standard, four maximum, variable speed    Max memory capacity	Keyboard	None (use USB port)	
auto-sensing, redundant with two power supplies Four fans standard, four maximum, variable speed  Max memory capacity 64GB with eight 8GB PC3-10600 DDR3 RDIMMs (using 67Y1464)  Max internal capacity 3.5" SATA HS: 8.0TB with eight 1TB HS SATA disks (using 67Y1480) 3.5" SAS HS: 3.6TB with eight 450GB HS SAS disks (using 67Y1482)  Limited Warranty¹  Power-On Hotkey  Setup Utility: DEL at startup Network Boot: F12 at start		One or two 750 watts standard, two maximum, variable speed fan,	
Max memory capacity 64GB with eight 8GB PC3-10600 DDR3 RDIMMs (using 67Y1464)  Max internal capacity 3.5" SATA HS: 8.0TB with eight 1TB HS SATA disks (using 67Y1480) 3.5" SAS HS: 3.6TB with eight 450GB HS SAS disks (using 67Y1482)  Limited Warranty¹  Setup Utility: DEL at startup Network Boot: F12 at startup Etril Ctrl+C at startup Software Management Tools ThinkServer EasyStartup  Security Administrator password	Cooling	auto-sensing, redundant with two power supplies	
3.5" SATA HS: 8.0TB with eight 1TB HS SATA disks (using 67Y1480) 3.5" SAS HS: 3.6TB with eight 450GB HS SAS disks (using 67Y1482)  Limited Warranty¹  Administrator password	64GB with eight	· · · ·	Setup Utility: DEL at startup     Network Boot: F12 at startup     1068E RAID: Ctrl+C at startup
Limited Warranty <sup>1</sup> • Administrator password		8.0TB with eight 1TB HS SATA disks (using 67Y1480)	•
<ul> <li>Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays)</li> <li>ThinkPlus™ services available; see lenovo.com/thinkplus/warranty</li> <li>Onsite service upgrade options (in eligible locations)<sup>7</sup></li> <li>Post warranty maintenance services</li> <li>24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378</li> <li>User password</li> <li>Boot sequence control</li> <li>Serial port I/O control</li> <li>USB port disablement (all)</li> <li>RoHS-compliant</li> </ul>	<ul> <li>3-year parts a</li> <li>Customer Re selected part</li> <li>ThinkPlus™ s</li> <li>Onsite serv</li> <li>Post warra</li> </ul>	Limited Warranty¹ and labor placeable Unit (CRU) parts only (with limited onsite service for s³, 8 am - 5 pm, Mon - Fri coverage excluding holidays) services available; see lenovo.com/thinkplus/warranty rice upgrade options (in eligible locations)² nty maintenance services	Administrator password     User password     Boot sequence control     Boot without keyboard, mouse, diskette     Serial port I/O control     USB port disablement (all)

Name	Type- model	Slot x bay	Proc- essor(s)	GHz (	ores	Memory DIMMs	Disk size	RAID Battery	Disk bays	Disk Controller	Disk type	RAID Int	System mgmt	Power supply(s) Ethernet	Avail date
BD240	1047-111	1 3 x 9 1	Lx E5503	2 00	2	1x2GB	3.5"	None	8 x Hot-swan	1068F	SATA/SAS4	0/1/1F	IPMI	1x750W 2xGh	Jul 10

- This model has a 1-year limited warranty
- . High performance, scalability, and remote management supported at value price point



# ThinkServer™ TD230, RD240 Accessories

Partial list of accessories supported on Le	novo® ThinkServer	
TD230, RD240.	ilovo illilikseivei	
ThinkServer Ready accessories are available Business Partners. Locate a Business Partners bplocator.lenovo.com	through Lenovo er near you at:	
Processor 50		System Management
TD230: Intel® Xeon® E5503 Processor Option Kit	67Y1448 ann 07/27/	
Intel Xeon E5506 Processor Option Kit Intel Xeon E5507 Processor Option Kit	67Y1449 ann 07/27/ 67Y1458 ann 07/27/	Redundant Power Supply
Intel Xeon E5620 Processor Option Kit	67Y1457 ann 07/27/	7 RD240: ThinkServer RD240 Redundant PSU 67Y1497 ann 07/27/10
RD240: Intel Xeon E5503 Processor Option Kit Intel Xeon E5506 Processor Option Kit Intel Xeon E5507 Processor Option Kit	67Y1466 ann 07/27/ 67Y1467 ann 07/27/ 67Y1476 ann 07/27/	3.5" SATA Direct Cable (DC) and Hot-swap (HS):
Intel Xeon E5620 Processor Option Kit Intel Xeon E5640 Processor Option Kit <sup>50</sup> Additional processor must match the existir	67Y1475 ann 07/27/ 67Y1471 ann 07/27/	250GB <sup>2</sup> 3.5" SATA DC/HS (7200 rpm) 67Y1400 <i>ann 02/23/10</i>
Memory <sup>53</sup>		3.5" SATA HS:
All: 2GB PC3-10600 DDR3 RDIMM (2R x 8) 4GB PC3-10600 DDR3 RDIMM (2R x 4)	67Y1432 ann 07/27/ 67Y1433 ann 07/27/	
RD240: 8GB PC3-10600 DDR3 RDIMM (2R x 4)	67Y1464 ann 07/27/	
Backup Lenovo 160GB Internal USB RDX Bundle	67Y1394 ann 02/23/	
Lenovo 320GB Internal USB RDX Bundle Lenovo 500GB Internal USB RDX Bundle Lenovo 160GB RDX Data Cartridge Lenovo 320GB RDX Data Cartridge Lenovo 500GB RDX Data Cartridge	67Y1396 ann 02/23/ 67Y1398 ann 02/23/ 67Y1395 ann 02/23/ 67Y1397 ann 02/23/ 67Y1399 ann 02/23/	RD240:   300GB 3.5" SAS HS (15000 rpm)
Connectivity Intel PRO/1000 PT Dual Port Ethernet	67Y1393 ann 02/23/	
ThinkServer RAID controller TD230:		
ThinkServer TD230 SATA RAID 5 Upgrade ThinkServer 9240-8i RAID Controller	67Y1459 ann 07/27/ 67Y1460 ann 07/27/	
RD240: ThinkServer 8708ELP Controller (256MB) ThinkServer 8708ELP RAID Controller Battery	67Y1494 ann 07/27/ y 67Y1495 ann 07/27/	
<b>Keyboard</b> Preferred Pro USB Keyboard	73P5220 ann 06/21/	www.lenovo.com/support/security
Mouse Lenovo Optical Mouse (USB)	06P4069 ann 05/21/	Accessories Guide pdf at www.lenovo.com/accessoriesguide

# ThinkServer™ TD230, RD240 - ThinkPlus™ Services

# Partial list of Lenovo® ThinkPlus Services for ThinkServer™ TD230, RD240

For more information see:

# http://www.lenovo.com/services\_warranty/us/en/index.html

### Training classes

• The basics on components, diagnostics, troubleshooting, and managing Lenovo servers, delivered in interactive online format

Online Training, Understanding Lenovo Servers	45K4080
Online Training, Understanding Systems Management	45K4081
Installation, ThinkServer Hardware Only	45K4082

# ThinkPlus service upgrade options7

LOR = Lenovo Onsite Repair

TD230 with 1-year warranty	
3-year LOR 9x5 Next Business Day	45K4062
3-year LOR 9x5 4 hour response	45K4063
4-year LOR 9x5 Next Business Day	51J0731
4-year LOR 9x5 4 hour response	51J0732
5-year LOR 9x5 Next Business Day	51J0733
5-year LOR 9x5 4 hour response	51J0734

TD230 with 3-year warranty	
3-year LOR 9x5 4 hour response	45K4066
4-year LOR 9x5 Next Business Day	51J0735
4-year LOR 9x5 4 hour response	51J0736
5-year LOR 9x5 Next Business Day	51J0737
5-year LOR 9x5 4 hour response	51J0738

RD240 with 1-year warranty	
3-year LOR 9x5 Next Business Day	45K5305
3-year LOR 9x5 4 hour response	45K5306
4-year LOR 9x5 Next Business Day	51J0747
4-year LOR 9x5 4 hour response	51J0748
5-year LOR 9x5 Next Business Day	51J0749
5-year LOR 9x5 4 hour response	51J0750

51J0750
45K4076
51J0751
51J0752
51J0753
51J0754

# **ThinkPlus Priority Support**

- 9x5 Next Business Day response Lenovo Onsite Repair
  24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
- 24x7 support with priority routing and advanced level technicians

45K4064
45K4065
45K4067
45K4068

**RD240 with 1-year warranty** 3-year Priority Support 3-year Priority 4 Support 45K5307 45K5308

**RD240 with 3-year warranty** 3-year Priority Support 3-year Priority 4 Support 45K4077 45K4078

# **ThinkPlus Priority Support with Hard Disk Drive Retention**

- 9x5 Next Business Day response Lenovo Onsite Repair
  24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
- 24x7 support with priority routing and advanced level technicians
   Hard Disk Drive Retention (HDDR) means customer keeps disk

HDDR = Hard Disk Drive Retention

TD230 with 1-year warranty	
3-year Priority Support with HDDR	45K5445
3-year Priority 4 Support with HDDR	45K5446
TD230 with 3-year warranty	

3-year Priority Support with HDDR 3-year Priority 4 Support with HDDR 45K5447 45K5448

# **RD240 with 1-year warranty** 3-year Priority Support with HDDR 3-year Priority 4 Support with HDDR 45K5453 45K5454 **RD240 with 3-year warranty** 3-year Priority Support with HDDR 3-year Priority 4 Support with HDDR 45K5455

# **ThinkPlus Productivity**

- Priority Support
  Online Training, Understanding Lenovo Servers
  One-time hardware installation

3-year ThinkPlus Productivity, TD230 (1-year)	45K4088
3-year ThinkPlus Productivity, TD230 (3-year)	45K4090
3-year ThinkPlus Productivity, RD240 (1-year)	45K5309
3-year ThinkPlus Productivity, RD240 (3-year)	45K4096
	45K4096

45K5456





Lenovo® ThinkServer RD210



Lenovo ThinkServer RD220 (8 Disk Bays plus Tape Drive)



Lenovo ThinkServer RD220 (12 Disk Bays)



Lenovo ThinkServer RD220

Type- Name model	Slot x bay	Proc- essor(s)	GHz Core		Memory speed	Disk size	RAID Battery	Disk bays		Disk type		IMM Premiu	Power m supply(s)	Etherne	Avail t date
RD210 3795-21		. ,			1333MHz	2.5"	None	6xHot-s	wap (			None			May 09
			as a 1-yea d medium			odel is	part of	the US Top	oSelle	er™ Pro	ogram				
Processor(s)			essors, one						1U F	Rack to	р		Front		
	4.8GT	/s (giga-t	ransfers/se memory c	cond) QF	PI (QuickF	ath Int		ct),	0	P	Riser			disk optic	
Implementation	Proces	ssor uses	FC-LGA p	oackage,	two LGA1				Opt PSU	owei	Riser slot 2	2	disk disk	uisk oplic	al [[[
Memory	RDIMI Memo standa eight s ** Sys DDR3 *** Ad	M, PC3-1 ory Mirron ard memo sockets di tem autor memory vanced E	B max (640 0600 1333 ring, sixtee ory in 1 soc stributed in matically cl controller CC-enable DIMMs rec	MHz DD en 240-pii eket, 15 se nto 3-cha locks dow	R3**, Adv n DIMM so ockets ava nnel per p n for proc required	ockets, ailable* rocess essor	sor (3-3-2	2)	SU	Power supply	sockets sockets		Rear	PCle x16	Opt PSU PSU
Graphics	Matro	<® G200e,	integrated	, two VG	A DB-15 (	_	nd rear),	8MB;			kets				
Disk bays Disk Controller Optical Diskette Ethernet	6 hot-s Servel RAID <sup>8</sup> UltraS None Two G Broad	swap (HS RAID®-BF 0, 1 supp lim Enha (use USE igabit Eth com® 570	) disk bays R10i, PCI E port nced DVD±	s on 2.5" Express® I ERW s, TCP/IP ed over F	Slim-Form ous, SATA Offload E	3Gb/s Engine oad ba	s, ŠAS 30 (TOE), llancing,	Gb/s,	fan fan fan fan fan fan fan fan disks optical  • 1U Mechanical; rack-mount only • Black color front; metal case • 17.3"W x 27.5"D x 1.75"H						
Chipset	links to	o BCM57 ontroller F	oset, Intel I 09C, enter lub 10 (ICH bus to VS0	prise sou 110) for U	th bridge ISB, PCIe	interfac links t	ce (ESI) o SATA/S	to Intel	• 440mm W x 711.4mm D x 43mm H						
Riser card Front ports Rear ports Internal port Diagnostics Systems mgmt Prerequisites	Two U Two U two et One U Easy I inform Integra Truste upgrad	rtible via on SB 2.0, estable via on SB 2.0, estable should be sho	o PCI Expropositional rise external module (1), system of the external module (1), system of the external module (1), system of the expression of the external module (1), and system of the external module (1), and system of the external module (1), and the external module (1),	er card(s enitor (VG enitor (VG em mana mbedded ill-out ope em-error ( Module (IN TPM) 1.2	) to 64-bit A DB-15) A DB-15) agement (I hypervisc erator info LED) MM) std, II support,	133M , serial RJ-45) or rmation PMI 2.0	(9-pin), n panel v 0-compli	vith							
Keyboard Mouse Power supply(s) Cooling	None None One 6 redund	(use USE (use USE 75 watts dant with	port)	wo maxir supplies	num, hot-	swap, a	auto-sen	sing,					•		
Accessories Intel Xeon Dual 1GB PC3-1060 2GB PC3-1060 4GB PC3-1060 73GB <sup>2</sup> 2.5" SA 146GB 2.5" SA 300GB 2.5" SA Other accessor	0 DDR3 0 DDR3 0 DDR3 S SFF H S SFF H S SFF H	3 1333 MI 3 1333 MI 3 1333 MI IS (15000 HS (1000 HS (7200 HS (7200	Hz RDIMM Hz RDIMM Hz RDIMM ) rpm) 0 rpm) 0 rpm) ) rpm)		67Y0 67Y0 67Y0 67Y0 67Y0 67Y0 67Y0	0014 0015 0016 0115 0116 0118			• Dia	gnostic	ty: F1 at s c: F2 at st soot: F12	startup artup at startup	<u>'</u>		
Max internal c 3.0TB with six 5	ernal capacity th six 500GB SATA SFF disks							Software Management Tools  ThinkServer EasyStartup ThinkServer EasyManage				ols			
Virtualization										urity					
Limited Warranty¹   □ 1-year parts and labor  □ Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays)  □ ThinkPlus™ services available; see lenovo.com/thinkplus/warranty  • Onsite service upgrade options (in eligible locations)²					Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse, diskette     Serial port I/O control     USB port disablement (front or all)				)						
<ul><li>Onsite ser</li><li>Post warra</li></ul>	vice upo nty mai	grade opt ntenance	ions (in eli services	gible loca	ntions)7				ThinkPlus Priority Support, 90-day Trial						
≈ 24 hour x 7 d				the war	ranty perio	od¹ via	800-426	7378	RoH	S-com <sub>l</sub>	pliant				

ROCI VCI	RD210 (3796) - TopSeller (2GB RDIMM)	Personal Systems Reference (PSREF
Type- Name model	Slot x Proc- Memory Memory Disk RAID Disk bay essor(s) GHz Cores DIMMs speed size Battery ba	
RD210 3796-23		t-swap SATA/SAS <sup>4</sup> 0/1 None 2x675W 2xGb May 0 t-swap SATA/SAS Multi* None 2x675W 2xGb May 0
	<ul> <li>These models have a 3-year limited warranty<sup>1</sup></li> <li>Easy to use with ThinkServer EasyStartup and EasyManage soft</li> <li>These small and medium business (SMB) models are part of the</li> </ul>	tware US TopSeller™ Program
Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5504 or E5506 with quad-core,	1U Rack top Front
Implementation	4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 800MHz DDR3 memory controller, and 4MB cache Processor uses FC-LGA package, two LGA1366 sockets	Power soot
Memory	2GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3**, Advanced ECC***, Memory Mirroring, sixteen 240-pin DIMM sockets, standard memory in 1 socket, 15 sockets available****, eight sockets distributed into 3-channel per processor (3-3-2) *** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller **** Advanced ECC-enable DIMMs required ***** Over eight DIMMs requires dual processors	Power supply  Power supply  Power supply  Power supply  Rear  Rear  Project 16 Project 1
Graphics	Matrox® G200e, integrated, two VGA DB-15 (front and rear), 8MB; Maximum resolution: 1280x1024@60Hz	ess
Disk bays Disk Controller Optical Diskette Ethernet	6 hot-swap (HS) disk bays on 2.5" Slim-Form-Factor (SFF) std 27U: ServeRAID®-BR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1 support 23U: ServeRAID-MR10i, PCIe bus, SATA 3Gb/s, SAS 3Gb/s, RAID 0, 1, 5, 6, 10, 50 support UltraSlim Enhanced DVD±RW None (use USB port) Two Gigabit Ethernet ports, TCP/IP Offload Engine(TOE), Broadcom® 5709C operated over PCIe bus, load balancing, upgradeable to 4 int ethernet ports via optional daughter card	1U Mechanical; rack-mount only     Black color front; metal case     17.3"W x 27.5"D x 1.75"H     440mm W x 711.4mm D x 43mm H     34.5 lb (15.6kg) max configuration
Chipset	Intel 5520 Chipset, Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O	Toolless top cover removal     Toolless disk and optical drive removal     Toolless adapter retention     Illuminated front icons with pull-out     Easy LED Diagnostics panel
Riser card Front ports Rear ports Internal port Diagnostics Systems mgmt	(See Right) Two PCI Express 2.0 x16 slots std, convertible via optional riser card(s) to 64-bit 133MHz PCI-X Two USB 2.0, external monitor (VGA DB-15) Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45) One USB connector for embedded hypervisor Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED) Integrated Management Module (IMM) std, IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support.	Bay 1 5.25", 0.5" high, external, std optical Bay 2 2.5", 0.6" high, external, optional disk Bay 3 2.5", 0.6" high, external, optional disk Bay 4 2.5", 0.6" high, external, optional disk Bay 5 2.5", 0.6" high, external, optional disk Bay 6 2.5", 0.6" high, external, optional disk Bay 7 2.5", 0.6" high, external, optional disk Bay 7 2.5", 0.6" high, external, optional disk Bay 7 2.5", 0.6" high, external, optional disk Blot 1: low-profile, PCI Express 2.0 x16 Slot 2: half-length, full-height, PCI Express 2.0 x16
Prerequisites	upgradeable to IMM Premium Monitor, keyboard, mouse, SATA/SAS disk, rack, OS	Sist 2. Hair longin, fair Hoight, 1 Of Express 2.0 x10
Keyboard Mouse Power supply(s)	None (use USB port) None (use USB port) Two 675 watts standard, two maximum, hot-swap, auto-sensing, redundant with two power supplies Six fans std, six maximum, variable speed, hot-swap	Virtualization Virtualization ready, hypervisor connector embedded
Accessories		7: 71
2GB PC3-10600 300GB <sup>2</sup> 2.5" SA 500GB 2.5" SA	Core Processor E5504 67Y0007  D DDR3 1333 MHz RDIMM 67Y0015  S SFF HS (10000 rpm) 67Y0118  A SFF HS (7200 rpm) 67Y0121  es at lenovo com/accessories	Power-On Hotkey  Setup Utility: F1 at startup Diagnostic: F2 at startup Network Boot: F12 at startup

# **Software Management Tools**

Security

- ThinkServer EasyStartupThinkServer EasyManage

# 3.0TB with six 500GB SATA SFF disks Limited Warranty<sup>1</sup>

3-year parts and labor

Max internal capacity

- Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am 5 pm, Mon Fri coverage excluding holidays)
  ThinkPlus™ services available; see lenovo.com/thinkplus/warranty

- Onsite service upgrade options (in eligible locations)<sup>7</sup>
   Post warranty maintenance services
   24 hour x 7 day¹⁴ toll-free support during the warranty period¹ via 800-426-7378

- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

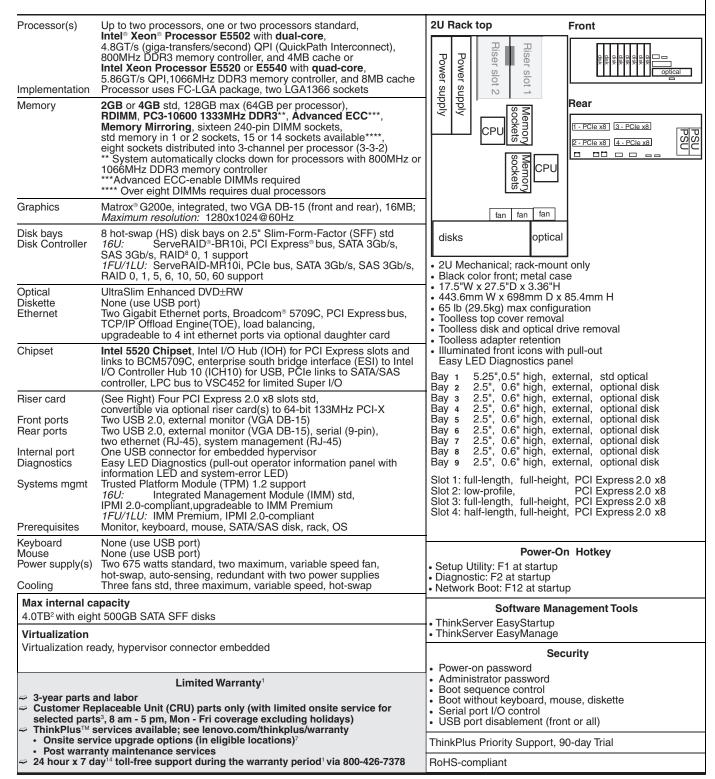
ThinkPlus Priority Support, 90-day Trial

RoHS-compliant

Disk **RAID** Disk IMM Type-Slot x Proc-Memory Memory Disk RAID Power Avail Premium supply(s) Ethernet Battery Name model bay essor(s) GHz Cores DIMMs speed size bavs type Int 1333MHz 2.5" Battery 6xHot-swap SATA/SAS4 Multi\* Premium 2x675W 2xGb May 09 **RD210** 3796-2CU 2x7 1xE5540 2.53 4 2x2GB \* Multi = RAID-0/1/5/6/10/50/60 support This model has a 3-year limited warranty Easy to use with ThinkServer EasyStartup and EasyManage software This small and medium business (SMB) model is part of the US TopSeller™ Program Up to two processors, one processors standard, Intel® Xeon® Processor E5540 with quad-core, 1U Rack top Processor(s) Front Riser 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Riser disk disk disk 1066MHz ĎĎR3 memory controĺler, and 8MB cache Power supply Power supply disk disk optical Processor uses FC-LGA package, two LGA1366 sockets Implementation slot Slot 4GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3\*\*, Advanced ECC\*\*\*, Memory Mirroring, sixteen 240-pin DIMM sockets, Memory N Rear std memory in 1 socket, 15 sockets available\*\* PSU 1 - PCle x16 2 - PCle x16 eight sockets distributed into 3-channel per processor (3-3-2) System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memóry controller \*\*\*Advanced ECC-enable DIMMs required Memc \*\*\*\* Over eight DIMMs requires dual processors Matrox® G200e, integrated, two VGA DB-15 (front and rear), 8MB; Maximum resolution: 1280x1024@60Hz Graphics 6 hot-swap (HS) disk bays on 2.5" Slim-Form-Factor (SFF) std ServeRAID®-MR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, Disk bays fan fan fan fan fan fan Disk Controller RAID<sup>8</sup> 0, 1, 5, 6, 10, 50 support, Battery backed cache integrated disks optical Optical UltraSlim Enhanced DVD±RW · 1U Mechanical; rack-mount only Diskette None (use USB port) · Black color front; metal case Two Gigabit Ethernet ports, TCP/IP Offload Engine(TOE), Broadcom® 5709C operated over PCIe bus, load balancing, Ethernet • 17.3"W x 27.5"D x 1.75"H 440mm W x 711.4mm D x 43mm H upgradeable to 4 int ethernet ports via optional daughter card 34.5 lb (15.6kg) max configuration Toolless top cover removal
Toolless disk and optical drive removal Chipset Intel 5520 Chipset, Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O · Toolless adapter retention Illuminated front icons with pull-out Easy LED Diagnostics panel Riser card (See Right) Two PCI Express 2.0 x16 slots std, convertible via optional riser card(s) to 64-bit 133MHz PCI-X 5.25",0.5" high, external, std optical 5.25 , 0.5 nigh, external, 2.5", 0.6" high, external, Two USB 2.0, external monitor (VGA DB-15)
Two USB 2.0, external monitor (VGA DB-15), serial (9-pin), optional disk Front ports Bay 2 Rear ports Bay з optional disk two ethernet (RJ-45), system management (RJ-45) One USB connector for embedded hypervisor Bay 4 optional disk Internal port Bay 5 optional disk Easy LED Diagnostics (pull-out operator information panel with Diagnostics Bay 6 optional disk information LED and system-error LED) Bay 7 optional disk Systems mgmt Integrated Management Module (IMM) Premium, Slot 1: low-profile, PCI Express 2.0 x16 IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support Slot 2: half-length, full-height, PCI Express 2.0 x16 Monitor, keyboard, mouse, SATA/SAS disk, rack, OS Prerequisites Keyboard None (use USB port) None (use USB port) Mouse Power supply(s) Two 675 watts standard, two maximum, variable speed fan, hot-swap, auto-sensing, redundant with two power supplies Cooling Six fans std, six maximum, variable speed, hot-swap Accessories Intel Xeon Quad-Core Processor E5540 67Y0096 73GB<sup>2</sup> 2.5" SAS SFF HS (15000 rpm) 146GB 2.5" SAS SFF HS (10000 rpm) 300GB 2.5" SAS SFF HS (10000 rpm) 67Y0115 67Y0116 Power-On Hotkey 67Y0118 Setup Utility: F1 at startup 500GB 2.5" SATA SFF HS (7200 rpm) 67Y0121 Diagnostic: F2 at startup Other accessories at lenovo.com/accessories Network Boot: F12 at startup **Software Management Tools** Max internal capacity ThinkServer EasyStartup ThinkServer EasyManage 3.0TB with six 500GB SATA SFF disks Virtualization Security Virtualization ready, hypervisor connector embedded Power-on password Administrator password Limited Warranty<sup>1</sup> Boot sequence control 3-year parts and labor Boot without keyboard, mouse, diskette Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts³, 8 am - 5 pm, Mon - Fri coverage excluding holidays)
ThinkPlus™ services available; see lenovo.com/thinkplus/warranty Serial port I/O control USB port disablement (front or all) Onsite service upgrade options (in eligible locations) ThinkPlus Priority Support, 90-day Trial Post warranty maintenance services
 24 hour x 7 day<sup>14</sup> toll-free support during the warranty period<sup>1</sup> via 800-426-7378 RoHS-compliant

Name			Proc- essor(s)	GHz			Memory speed	Disk size	RAID Battery	Disk bays	Disk type	RAID Int	IMM Premium	Power supply(s)	Etherne	Avail t date
RD220	3798-16L 3798-1FL 3798-1LL	J 4x9	1xE5520	2.26	4	1x2GB	1333MHz	2.5"	None	8xHot-swap 8xHot-swap 8xHot-swap	SATA/SAS	Multi*		2x675W	2xGb	May 09
	= RAID-0/									om for on up	0, , 0, .0					may co

- These models have a 3-year limited warranty<sup>1</sup>
- Easy to use with ThinkServer EasyStartup and EasyManage software
- These small and medium business (SMB) models are part of the US TopSeller™ Program



Туре-		isk Disk RAID IMM Power Avail
Name model		ays type Int Premium supply(s) Ethernet date of swap SATA/SAS4 Multi* None 2x675W 2xGb May 09
	1/5/6/10/50/60 support	of swap GATA/GAG With Mone ZX075W ZXGB Way 00
	<ul> <li>This model has a 3-year limited warranty<sup>1</sup></li> <li>Easy to use with ThinkServer EasyStartup and EasyManage soi</li> <li>This small and medium business (SMB) model is part of the US</li> </ul>	
Processor(s)	Up to two processors, one processor standard, Intel® Xeon® Processor E5506 with quad-core, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect),	2U Rack top Front
Implementation	800MHz DDR3 memory controller, and 4MB cache Processor uses FC-LGA package, two LGA1366 sockets	Powe Powe Powers Tape Powers
Memory	2GB std, 128GB max (64GB per processor), RDIMM, PC3-10600 1333MHz DDR3**, Advanced ECC***, Memory Mirroring, sixteen 240-pin DIMM sockets, std memory in 1 socket, 15 sockets available*****, eight sockets distributed into 3-channel per processor (3-3-2) *** System automatically clocks down for processors with 800MHz 1066MHz DDR3 memory controller ***Advanced ECC-enable DIMMs required **** Over eight DIMMs requires dual processors	er supply  Rear    Pole x8   3-Pole x8
Graphics	Matrox® G200e, integrated, two VGA DB-15 (front and rear), 16MB Maximum resolution: 1280x1024@60Hz	
Disk bays Disk Controller Tape backup	8 hot-swap (HS) disk bays on 2.5" Slim-Form-Factor (SFF) std ServeRAID®MR10i, PCI Express® bus, SATA 3Gb/s, SAS 3Gb/s, RAID® 0, 1, 5, 6, 10, 50, 60 support Optional, internal/external, 3.5", USB or SATA via disk controller	fan fan fan   Opt   Copt   C
Optical Diskette Ethernet	UltraSlim Enhanced DVD±RW None (use USB port) Two Gigabit Ethernet ports, Broadcom® 5709C, PCI Express bus, TCP/IP Offload Engine(TOE), load balancing, upgradeable to 4 int ethernet ports via optional daughter card	2U Mechanical; rack-mount only Black color front; metal case 17.5"W x 27.5"D x 3.36"H 443.6mm W x 698mm D x 85.4mm H 65 lb (29.5kg) max configuration
Chipset	Intel 5520 Chipset, Intel I/O Hub (IOH) for PCI Express slots and links to BCM5709C, enterprise south bridge interface (ESI) to Intel I/O Controller Hub 10 (ICH10) for USB, PCIe links to SATA/SAS controller, LPC bus to VSC452 for limited Super I/O	<ul> <li>Toolless top cover removal</li> <li>Toolless disk and optical drive removal</li> <li>Toolless adapter retention</li> <li>Illuminated front icons with pull-out</li> </ul>
Riser card Front ports Rear ports Internal port Diagnostics Systems mgmt Prerequisites	(See Right) Four PCI Express 2.0 x8 slots std, convertible via optional riser card(s) to 64-bit 133MHz PCI-X Two USB 2.0, external monitor (VGA DB-15) serial (9-pin), two USB 2.0, external monitor (VGA DB-15), serial (9-pin), two ethernet (RJ-45), system management (RJ-45), One USB connector for embedded hypervisor Easy LED Diagnostics (pull-out operator information panel with information LED and system-error LED) Integrated Management Module (IMM) std, IPMI 2.0-compliant, Trusted Platform Module (TPM) 1.2 support, upgradeable to IMM Premium Monitor, keyboard, mouse, SATA/SAS disk, rack, OS	Easy LED Diagnostics panel  Bay 1 5.25", 0.5" high, external, std optical Bay 2 2.5", 0.6" high, external, optional disk Bay 3 2.5", 0.6" high, external, optional disk Bay 4 2.5", 0.6" high, external, optional disk Bay 5 2.5", 0.6" high, external, optional disk Bay 6 2.5", 0.6" high, external, optional disk Bay 7 2.5", 0.6" high, external, optional disk Bay 8 2.5", 0.6" high, external, optional disk Bay 9 2.5", 0.6" high, external, optional disk Bay 10 3.5", 1.6" high, external, optional disk
Keyboard Mouse Power supply(s) Cooling	None (use USB port) None (use USB port) Two 675 watts standard, two maximum, variable speed fan, hot-swap, auto-sensing, redundant with two power supplies Three fans std, three maximum, variable speed, hot-swap	Slot 1: full-length, full-height, PCI Express 2.0 x8 Slot 2: low-profile, PCI Express 2.0 x8 Slot 3: full-length, full-height, PCI Express 2.0 x8 Slot 4: half-length, full-height, PCI Express 2.0 x8
2GB PC3-10600 300GB <sup>2</sup> 2.5" SA 500GB 2.5" SAT Lenovo® TV L15	d-Core Processor E5506 67Y0005 D DDR3 1333 MHz RDIMM 67Y0015 S SFF HS (10000 rpm) 67Y0118 TA SFF HS (7200 rpm) 67Y0121 St 15-inch Analog TFT Monitor 9165AC6 es at lenovo.com/accessories	Power-On Hotkey  • Setup Utility: F1 at startup  • Diagnostic: F2 at startup  • Network Boot: F12 at startup
Max internal ca	apacity 500GB SATA SFF disks	Software Management Tools  ThinkServer EasyStartup ThinkServer EasyManage
Virtualization		Security
<ul><li>⇒ 3-year parts a</li><li>⇒ Customer Re</li></ul>	Limited Warranty¹ und labor placeable Unit (CRU) parts only (with limited onsite service for s³, 8 am - 5 pm, Mon - Fri coverage excluding holidays)	Power-on password     Administrator password     Boot sequence control     Boot without keyboard, mouse, diskette     Serial port I/O control
<ul> <li>ThinkPlus™ s</li> <li>Onsite serv</li> </ul>	s evices available; see lenovo.com/thinkplus/warranty rice upgrade options (in eligible locations) <sup>7</sup> hty maintenance services	USB port disablement (front or all)     ThinkPlus Priority Support, 90-day Trial
	ay <sup>14</sup> toll-free support during the warranty period <sup>1</sup> via 800-426-7378	RoHS-compliant

# ThinkServer™ TD200, TD200x, RD210, RD220 Accessories

Partial list of accessories supported on Le TD200, TD200x, RD210, RD220	novo® ThinkServer		
ThinkServer Ready accessories are available Business Partners. Locate a Business Partne bplocator.lenovo.com			
Processors <sup>55</sup>		Disk Drive	
TD200: Intel® Xeon® Dual-Core Processor E5502 Intel Xeon Quad-Core Processor E5504 Intel Xeon Quad-Core Processor E5506	67Y0008 ann 10/06/09 67Y0009 ann 10/06/09 67Y0010 ann 10/06/09	All:   2.5" SAS Hot-swap (HS):   73GB <sup>2</sup> 2.5" SAS SFF HS (15000 rpm)   146GB 2.5" SAS SFF HS (10000 rpm)   146GB 2.5" SAS SFF HS (15000 rpm)	67Y0115 ann 05/05/09 67Y0116 ann 05/05/09 67Y0117 ann 05/05/09
TD200x: Intel Xeon Quad-Core Processor E5520 Intel Xeon Quad-Core Processor E5530 Intel Xeon Quad-Core Processor E5540	67Y0011 ann 06/30/09 67Y0102 ann 06/30/09 67Y0103 ann 03/02/10	300GB 2.5" SAS SFF HS (10000 rpm) 2.5" SATA HS: 300GB 2.5" SATA SFF HS (10000 rpm)	67Y0118 ann 05/05/09 67Y0002 ann 05/05/09
RD210, RD220:		160GB 2.5" SATA SFF HS (7200 rpm)   500GB 2.5" SATA SFF HS (7200 rpm)	67Y0120 ann 09/08/09 67Y0121 ann 09/08/09
Intel Xeon Dual-Core Processor E5502 Intel Xeon Quad-Core Processor E5504 Intel Xeon Quad-Core Processor E5506 Intel Xeon Quad-Core Processor E5520	67Y0004 ann 05/05/09 67Y0007 ann 05/05/09 67Y0005 ann 05/05/09 67Y0006 ann 05/05/09	3.5" SAS HS: 146GB 3.5" SAS HS (15000 rpm)	45J6211 ann 09/30/08
Intel Xeon Quad-Core Processor E5540 55 Additional Processor must match the existin	67Y0096 ann 05/05/09	3.5" SATA HS: 160GB 3.5" SATA HS (7200 rpm) 250GB 3.5" SATA HS (7200 rpm)	45J6200 ann 09/30/08 45J6201 ann 09/30/08
Memory 1GB PC3-10600 DDR3 ECC RDIMM 2GB PC3-10600 DDR3 ECC RDIMM 4GB PC3-10600 DDR3 ECC RDIMM	67Y0014 ann 05/05/09 67Y0015 ann 05/05/09 67Y0016 ann 05/05/09	500GB 3.5" SATA HS (7200 rpm) 750GB 3.5" SATA HS (7200 rpm) 1TB 3.5" SATA HS (7200 rpm)	45J6202 ann 09/30/08 45J6203 ann 09/30/08 45J6204 ann 09/30/08
Backup		3.5" SATA Simple-swap:   160GB 3.5" SATA Simple-swap (7200 rpm)	45J6195 ann 09/30/08
All: IBM® RDX 160GB Cartridge IBM RDX 320GB Cartridge IBM RDX 500GB Cartridge	67Y0169 ann 11/10/09 67Y0170 ann 11/10/09 67Y0171 ann 11/10/09	250GB 3.5" SATA Simple-swap (7200 rpm) 500GB 3.5" SATA Simple-swap (7200 rpm) 750GB 3.5" SATA Simple-swap (7200 rpm)	45J6196 ann 09/30/08 45J6197 ann 09/30/08 45J6198 ann 09/30/08
RD210, RD220: IBM LTO Generation 3 5-Pack Media	67Y1379 ann 11/10/09	TD200: 3.5" 6Gb/s SAS HS: 300GB 3.5" SAS HS (15000 rpm)	67Y1384 ann 01/26/10
ThinkServer IBM RAID controller SAS 3Gb HBA Controller V2 ServeRAID® M1015 ServeRAID M5015 ServeRAID M5014 ServeRAID M1000 Series Adv Feature Key ServeRAID M5000 Series Battery Kit ServeRAID M5000 Series Adv Feature Key	67Y0183 ann 11/10/09 67Y1368 ann 12/08/09 67Y0184 ann 11/10/09 67Y0185 ann 11/10/09 67Y0186 ann 12/08/09 67Y0186 ann 12/08/09 67Y0188 ann 12/08/09	450GB 3.5" SAS HS (15000 rpm) 600GB 3.5" SAS HS (15000 rpm)	67Y1385 ann 01/26/10 67Y1386 ann 01/26/10
Connectivity IBM 8Gb FC Single-port HBA by QLogic® IBM 8Gb FC Dual-port HBA by QLogic IBM 8Gb FC Single-port HBA by Emulex® IBM 8Gb FC Dual-port HBA by Emulex IBM 8Gb FC Single-port HBA by Brocade® IBM 8Gb FC Dual-port HBA by Brocade	67Y0172 ann 11/10/09 67Y0173 ann 11/10/09 67Y0174 ann 11/10/09 67Y0175 ann 11/10/09 67Y0176 ann 11/10/09 67Y0177 ann 11/10/09	For more information on server accessories www.lenovo.com/support/accessories www.lenovo.com/support/thinkserveracc	
Keyboard Preferred Pro USB Keyboard	73P5220 ann 06/21/05	www.lenovo.com/support/security  Other accessories at www.lenovo.com/acc	essories
Mouse Lenovo Optical Mouse (USB)	06P4069 ann 05/21/03	Accessories Guide pdf at www.lenovo.com/	accessoriesguide

# ThinkServer™ TD200x, RD210, RD220 - ThinkPlus™ Services

# Partial list of Lenovo® ThinkPlus Services for ThinkServer™ TD200x, RD210, RD220

For more information see:

## http://www.lenovo.com/services\_warranty/us/en/index.html

## **Training classes**

• The basics on components, diagnostics, troubleshooting, and managing Lenovo servers, delivered in interactive online format

Online Training, Understanding Lenovo Servers	45K4080
Online Training, Understanding Systems Management	45K4081
Installation, ThinkServer Hardware Only	45K4082

# ThinkPlus service upgrade options7

LOR = Lenovo Onsite Repair

TD200x with 1-year warranty	
3-year LOR 9x5 Next Business Day	45K4062
3-year LOR 9x5 4 hour response	45K4063
4-year LOR 9x5 Next Business Day	51J0731
4-year LOR 9x5 4 hour response	51J0732
5-year LOR 9x5 Next Business Day	51J0733
5-year LOR 9x5 4 hour response	51J0734
TD000	

TD200x with 3-year warranty	
3-year LOR 9x5 4 hour response	45K4066
4-year LOR 9x5 Next Business Day	51J0735
4-year LOR 9x5 4 hour response	51J0736
5-year LOR 9x5 Next Business Day	51J0737
5-year LOR 9x5 4 hour response	51J0738

RD210, RD220 with 1-year warranty	
3-year LOR 9x5 Next Business Day	45K5305
3-year LOR 9x5 4 hour response	45K5306
4-year LOR 9x5 Next Business Day	51J0747
4-year LOR 9x5 4 hour response	51J0748
5-year LOR 9x5 Next Business Day	51J0749
5-year LOR 9x5 4 hour response	51J0750
- 7	

5-year LON 9x5 4 Hour response	5130750
RD210, RD220 with 3-year warranty	
3-year LOR 9x5 4 hour response	45K4076
4-year LOR 9x5 Next Business Day	51J0751
4-year LOR 9x5 4 hour response	51J0752
5-year LOR 9x5 Next Business Day	51J0753
5-year LOR 9x5 4 hour response	51J0754

# **ThinkPlus Priority Support**

- 9x5 Next Business Day response Lenovo Onsite Repair
  24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
- 24x7 support with priority routing and advanced level technicians

TD200x with 1-year warranty	
3-year Priority Support	45K4064
3-year Priority 4 Support	45K4065
TD200x with 3-year warranty	

3-year Priority Support 3-year Priority 4 Support 45K4067 45K4068

RD210, RD220 with 1-year warranty

3-year Priority Support 3-year Priority 4 Support 45K5307 45K5308

RD210. RD220 with 3-year warranty

3-year Priority Support 3-year Priority 4 Support 45K4077 45K4078

# **ThinkPlus Priority Support with Hard Disk Drive Retention**

- 9x5 Next Business Day response Lenovo Onsite Repair
- 24x7 4-hour response Lenovo Onsite Repair (for Priority 4 Support)
- 24x7 support with priority routing and advanced level technicians
   Hard Disk Drive Retention (HDDR) means customer keeps disk

HDDR = Hard Disk Drive Retention

TD200x with 1-year warranty	
3-year Priority Support with HDDR	45K5445
3-year Priority 4 Support with HDDR	45K5446
TD200x with 3-year warranty	

3-year Priority Support with HDDR 3-year Priority 4 Support with HDDR 45K5447 45K5448

**RD210, RD220 with 1-year warranty** 3-year Priority Support with HDDR 3-year Priority 4 Support with HDDR 45K5453 45K5454 RD210, RD220 with 3-year warranty

3-year Priority Support with HDDR 3-year Priority 4 Support with HDDR 45K5455 45K5456

# **ThinkPlus Productivity**

- Priority Support
  Online Training, Understanding Lenovo Servers
  One-time hardware installation

3-year ThinkPlus Productivity, TD200x (1-year)	45K4088
3-year ThinkPlus Productivity, TD200x (3-year)	45K4090
3-year ThinkPlus Productivity, RD210, RD220 (1-year)	45K5309
3-year ThinkPlus Productivity, RD210, RD220 (3-year)	45K4096

# ThinkServer™ Operating System Offerings

Microsoft® Windows Server® for Lenovo ThinkServer (ROK = Reseller Option Kits)		Novell® Server Software - SLES for Lenovo ThinkServer (SLES = SUSE® Linux® Enterprise Server)	
All Lenovo ThinkServer:		1-year SLES plus 1-year Standard support 1-year SLES plus 1-year Priority support	55Y7037 55Y7038
English language		3-year SLES plus 3-year Standard support	55Y7039
Small Business Server 2008 Std SP2 ROK (64, 4GB) <sup>61</sup> Small Business Server 2008 Premium SP2 ROK (64, 4GB) Server 2008 R2 Standard ROK (64) <sup>62</sup> Server 2008 R2 Enterprise ROK (64)	84978ME 84978NE 84978KE 84978LE	3-year SLES plus 3-year Priority support	55Y7040
French language			
Server 2008 Standard ROK (32, 64) <sup>60</sup> Server 2008 Enterprise ROK (32, 64) Small Business Server 2008 Standard SP2 ROK (64, 4GB)	84978BF 84978DF 84978MF		
Spanish language			
Server 2008 Standard ROK (32, 64) Server 2008 Enterprise ROK (32, 64)	84978BS 84978DS		
German language			
Server 2008 Standard ROK (32, 64) Server 2008 Enterprise ROK (32, 64) Server 2008 R2 Standard ROK (64) Server 2008 R2 Enterprise ROK (64) Small Business Server 2008 Standard SP2 ROK (64, 4GB)	84978BG 84978DG 84978KG 84978LG 84978MG		
Multi-Language (English/Japanese)			
Server 2008 R2 Standard ROK (64) Server 2008 R2 Enterprise ROK (64)	84978OA 84978PA		
Multi-Language (English/French/Italian/German/Spanish) Server 2008 R2 Standard ROK (64) Server 2008 R2 Enterprise ROK (64)	84978OE 84978PE		
TS200, RS210:			
Multi-Language (English/Japanese) Server 2008 R2 Foundations ROK (64)	84978HA		
Multi-Language (English/French/Italian/German/Spanish) Server 2008 R2 Foundations ROK (64)	84978HE		
$^{60}$ 32, 64 = available in both 32-bit and 64-bit $^{61}$ 64, 4GB = available in 64-bit only, 4GB memory required $^{62}$ 64 = available in 64-bit only			
Microsoft Windows Client Access License(s)			
Multi-Language			
Server 2008 1 user Server 2008 5 user Server 2008 Terminal Services 5 user Small Business Server 2008 Standard 1 user Small Business Server 2008 Standard 5 user Small Business Server 2008 Premium 1 user Small Business Server 2008 Premium 5 user	849781A 849785A 849785B 849781C 849785C 849781D 849785D		

**Availability:** All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors.

**Warranty:** For a copy of applicable product warranties, write to: Warranty Information, 500 Park Offices Drive, RTP, NC, 27709, Attn: Dept ZPYA/B600. Lenovo makes no representation or warranty regarding third party products or services.

- Limited warranty: Support unrelated to a warranty issue may be subject to additional charges.
- <sup>2</sup> **Hard drive:** GB = billion bytes, TB = trillion bytes. Accessible capacity is less.
- <sup>3</sup> Systems with limited onsite service are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by Lenovo. Lenovo will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by Lenovo for onsite replacement. For a list of onsite replaceable parts, contact Lenovo. In the United States call 1-800-426-7378. Support unrelated to a warranty issue may be subject to additional charges.
- SATA/SAS: The system configuration supports the installation of either SATA or SAS disks. A configuration including both SATA and SAS disks is not supported.
- ThinkPlus Services: These services are available for machines normally used for business, professional, or trade purposes, rather than personal, family, or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response time objectives and are not guarantees. If the machine problem turns out to be a Customer Replaceable Unit (CRU), a part will be express shipped to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. P&L means parts and labor. P/U means pick-up. See ThinkPlus terms and conditions for complete details and restrictions.

<sup>8</sup> RAID: Supported RAID levels for a system will vary from the stated capabilities of the RAID controller due to dependencies on the number and capacity of physical disks in the system and on customer requirements for performance, fault tolerance, or data redundancy.

RAID levels and requirements:

- RAID 0 (striping) provides increased performance by writing data across multiple drives.
- RAID 1 (mirroring) provides fault tolerance by writing the data on two drives.
- RAID 5 (striping with parity) uses distributed parity data to provide fault tolerance more efficiently than RAID 1. Requires three or more drives.
- RAID 6 (striped set with dual distributed parity) provides fault tolerance from two drive failures; array continues to operate with up to two failed drives. Requires four drives.
- RAID 10 (or RAID 1+0) combines
   RAID 1 and RAID 0 to create a stripe of mirrors that is fault tolerant while offering increased performance.

   Requires four drives.
- RAID 50 (or RAID 5+0) combines
   RAID 5 and RAID 0 to create block-level striping with distributed parity improving performance over RAID 5.

   Requires six drives.
- RAID 60 (or RAID 6+0) combines
   RAID 6 and RAID 0 to create block-level striping with distributed double
   parity improving performance over
   RAID 6. Requires eight drives.
- Response times may vary. May exclude some holidays. Telephone support may be subject to additional charges.



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